

Gleanings In Bee Culture

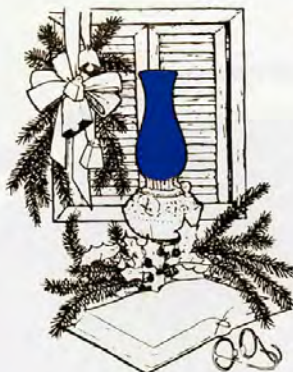


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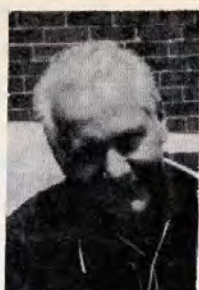
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THE A.I. ROOT CO., PUBLISHERS
P.O. BOX 706
MEDINA, OHIO 44258-0706

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Subscription Rates: United States subscribers, one year, \$10.75; two years, \$20.90. Single copy \$1.50. Other countries including Canada, Pan American countries and Spain (U.S. Currency only). \$3.25 per year additional for postage. Published monthly. Discontinuance: Subscription stopped on expiration. Change of Address: Give your old as well as the new and print the name to which the journal has heretofore been addressed. Remittance should be sent by post office money order, bank draft, express money order or check.

Articles are solicited. Stamps should be enclosed to insure return of manuscript to author if not printed.

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December 1985

(ISSN 0017-114X)

Vol. 113, No. 12

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by **JOE MULLIGAN** of Mulligan's Apiaries
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Would you believe that in the middle of Queens, one of the boroughs which make up New York City, there is a farm? I didn't until I met Walter Blohm, a fellow member of the Long Island Beekeepers Club.

Wally invited our club to participate in the festivities and to bring our Bee Cage as an exhibit.

We jumped at the opportunity to educate the "City Slickers" to the difference between Yellow Jackets, which pester them as they have lunch on their patio and the gentle honey bee, who is blamed for all bad things other insects do.

It offered the public a chance to observe up close, with no danger to themselves how the bees are handled.

Beekeepers demonstrated the difference between nectar being processed into honey by the bees and the finished product, golden honey. It was the Long Island Beekeepers way of taking them on a personally guided tour of the "Honey Factory", the beehive.

Folks could wander past the old farm house of Jacob Adriance, built in 1772. They could walk down dirt paths to look at sheep grazing in the meadow, stroll by chickens and ducks and stop to say hello to old "Joshua", the farm donkey, old farm machinery was on view, even an old horse drawn hearse which may have given the farm members their last ride into the planting fields, when they themselves were the seed that was returned to the earth. It was a day, as if the hands of the clock were turned back to a less hectic time when the Big Apple was only a blossom.

Because the Bee Cage was a bit out of the way, I walked through the crowds with my beeveil and hat upon my head. With my smoker in hand, gently wafting sweet smells of autumn into the bright sunshine I greeted people, asking them to come follow me to my beeyard. To experience for themselves first hand, the peace and joy beekeepers know. "Come and see how the Long Island Beekeepers handle our gentle honey bees", was my cry. Like the famous Pied Piper — young and old came in droves. □

QUESTIONS & ANSWERS

Q. My ten colonies are about 350 feet from the house and I want them closer, perhaps about 90 feet. Can I wait until February and just move them, without getting a lot of drifting?

Edwin L. Scales, Bellaire, Ohio

A. Yes. A few bees might drift back to the old location, but these would be old bees from the previous fall, destined to perish soon anyway.

— Richard Taylor

Q. My hive consists of two standard hive bodies for brood chambers. I harvested the honey at the end of July and added a shallow super with queen excluder under it for their winter stores. Is it possible that the bees will go up into the super and leave the queen behind to freeze?

Francis Bartush, Orwigsburg, PA

A. An excluder should not be left in a hive over winter, for the reason you suggest. And the shallow super should not have been added anyway. Two full-depth hive bodies for the bees to winter in are plenty, provided the top one is heavy with honey. My bees winter in one and a half stories, without winter loss, because they are heavy with honey.

— Richard Taylor

Q. Last year my clover honey did not crystalize until winter, but this year it crystalized in two weeks. Isn't it supposed to stay liquid if you heat it to 150°F?

Walter Prah, Murdo, South Dakota

A. It must have come into contact with some crystalized honey, either in the containers you drew it into, or perhaps in a strainer you used. Honey that comes into contact with granulated honey is apt to granulate itself, whether it has been heated or not.

— Richard Taylor

Q. My honey was half granulated when I harvested it this year. Some supers were solid sugar. I have heard of others having the same problem this year. How come?

Roscoe M. Barnes, Ikesburg, PA

A. Usually this means that the honey has been left on the hives too late in the fall and that there is goldenrod and aster in it, but since your letter is postmarked October 4, this would not explain your case. Obviously, the bees got a flow from some fast-granulating early honey, but there is no way of knowing what one. This happened this summer with my earliest comb honey, harvested in May and June, to my great astonishment. I think it is not likely to happen again in your area, and mine, for a long time. About all you can do with the granulated combs from this year is give them back to the bees, putting them under the brood nest if convenient. They will clean them out and refill them.

— Richard Taylor

Q. I notice that you recommend a one and one-half story hive for comb honey production. Would this also work for producing extracted honey, without getting brood in the supers?

Ernest Wright, Carthage, MO

A. Yes, provided you have a good fall flow and the bees go into winter heavy with stores. There are other ways, besides queen excluders, of keeping brood out of the supers. One is to have a barrier of honey between the brood and the supers, which means, having honey in that second half-story in the spring and early summer. The queen will seldom cross over combs full of honey to lay eggs above. Another way is to insert a patch of plastic or other material the bees cannot chew up between brood and supers. Make the patch

about ten inches square and lay it over the top bars of the second story, about equal distance from the sides. The worker bees go around this to get to the supers, but the queen is less apt to, as it would split her brood pattern.

— Richard Taylor

Q. What do you do with uncapped rounds at season's end?

**Rev. Clarence H. Bopp
Kirkwood, MO**

A. If I expect a fall honey flow I assemble unfinished sections into a super and give the bees a chance to finish them. If the last honey flow is over I save out any half-finished sections for home use. Any others that have honey in them are set out in the yard on a warm day for the bees to lick dry, then the rings are cleaned up and reused.

— Richard Taylor

Q. We raise comb honey. The sections are filled and capped nicely. We put them in cartons, then in a plastic bag and into a freezer to destroy any wax worms or eggs. When we take them out we find "weeping" from some of the cappings, that is, droplets of honey that have oozed out. What can be done to correct this?

Mrs. Deanna McGiffin, Knox, PA

A. I do not think the cause of this is known, but my own experience suggests it might be one of the following: (a) Leaving the honey in the freezer too long, or (b) no air space under the cappings. With respect to (a), the honey needs to be left in the freezer only long enough to go down to about 0°F. With respect to (b), some bees plaster the cappings right to the surface of the honey, while other bees do not.

I will be interested in hearing from others who may know more about this.

— Richard Taylor

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Honey In America's Schools Part III

"What You Can Do To Help"

by ALAN L. KING 607 S. Fuller Dr. Indianapolis, IN 46241

Parts one and two of this series on "Honey in America's Schools" should leave no doubt as to how valuable is the promotion of honey in the school food service. It's a promotion with a possible 24,000,000 beneficiaries — the students served by the school food service. But if American beekeepers properly pursued this objective, our industry will be the long term winner. In whatever circumstances we find ourselves; beekeeper; member of a local, state or national beekeeping group; or perhaps a leader of a beekeeping organization, we can all influence the growth of honey consumption in our schools. Like all worthwhile causes and like any promotion program, results arise from WORK. The work in this case should be on three levels; national, state and local. Most of part I and II have been focused on national efforts via the American School Food Service Association conference, so just a few comments on that. A few key elements on this level have been the hard working American honey queens of the past three years, continuity of quality leadership in people like JoAnne Weber and the Ericksons, good local help at the ASFSFA conferences, and a continuing concern for improving the effort. Perhaps most important is the fact that the effort has been sustained for three years. Since the emphasis of Part III is on "What You Can Do," here it is on the national level: Support the American Beekeeping Federation through joining or renewing your membership. When you send your dues in, attach a note that your support of the ABF is based at least in part on your wish to see continued sponsorship of a booth at the ASFSFA conference. Secondly, impress upon the executive board of the Federation that this is a **high priority** promotion that must be maintained.



Evening assembly of the American School Food Service Association in Philadelphia. The 52 flags on stage represent state school food service associations in 50 states and two US territories.

Now let's look at the other two levels of activity: State and local. As a part of the ASFSFA structure, each state has its own school food service association, and each state association has a state conference that is similar to the American conference. That means that each rents booth space for food and equipment vendors and supplies at state conferences. And in most cases that means an opportunity for beekeeping associations to man a booth and promote honey. The first step is to contact your state SFSA to find out details of their state conference. Your booth need not be extremely elaborate, even though some other booths will be. The important things are to make it neat, clean and attractive make the backdrop and decorations apply to cooking with honey; hand out good, tested, quantity honey recipes; and get three or four friendly, knowledgeable, enthusiastic people to man the booth. Vivid color enlarged photos of honey cooked foods work well on the back ground. A display of various flavors of honey fits in well (so do beeswax candles — anything to draw attention — well, almost anything). The convention goes really like small pins, stickers, or buttons that show bees or a honey slogan. Several jars of honey given out one at a time at random to school food service personnel is an attraction, as are samples of honey candy. Honey queen recipe folders or similar brochures can be handed out, but emphasis must be on quantity recipes. If you check around with fellow beekeepers, you'll probably find that you directly or indirectly know at least a half dozen people who work in the school food service. Ask each for their favorite quantity honey recipes — perhaps some that they've worked out for themselves.

Continued on next page

Continued from previous page
Honey In America's Schools

Ask if they know about any quantity recipe cookbooks that are available. (We found one in Indiana that has over two dozen tested honey recipes interspersed.) When you've decided on recipes — and 4-8 are enough for a packet — you're ready for printed. The recipes should be printed on card stock (5" x 8" is fairly standard for recipe files) and the individual cards can be stapled together along with a general information sheet about honey. At this stage, look around for more help. Talk to your state department of agriculture and explain what you're trying to do. In some cases they will agree to do the printing — it's worth a try. The Wisconsin Department of Agriculture printing quantity recipes charging only for paper. If putting together your own recipe packet sounds too laborious, you can purchase packets from the American Beekeeping Federation. (Frank Robinson, 13637 N.W. 39th Ave., Gainesville, FL 32606.)

In Indiana the conference is a two day affair, Friday and Saturday morning. Booth space, with tables, covers, drapes, chairs and electricity is \$275. There are normally about 85-100 exhibitors and attendance of ISFSA members (of which there are 1700+) is usually over 800. Indiana schools currently use about 145,000 lbs. of commodity honey per year, but that's only a fraction of what they can use if we will meet the promotional challenge at hand. And that is the case in every state. Florida beekeepers set a good example by having a booth at the Florida State Food Service Association conference for the last two years. In 1984 the effort was headed by the Central Florida Beekeepers Association.

Most state school food service associations publish a periodic magazine or newsletter and there is no reason why a honey informational article can't be used there. Ask your state school food service president or secretary about the possibilities.

Contact your state Director of Food and Nutrition. Ask to talk to the person in charge of the commodities section. He will be the one who is familiar with the requisitioning, warehousing and distributing of honey in your state's schools. Let him (it's a him in Indiana) know that there is an association of beekeepers who are concerned about making efficient use of honey in the schools. Ask him if there are ways you can help. Some state's Food and Nutrition services hold "hands on" workshops to help educate food service personnel. Perhaps a quantity honey cooking demo can be arranged within such a format. Ask him if there are particular areas in the state where honey demand is lower than average, then beekeepers can make an extra effort to take recipes in to the schools there. That moves us into our final theatre — the local level.

Lots of beekeepers occasionally do bee talks in local schools. Why not take some quantity recipe packets every time you visit? Stop by the kitchen, give the head cook a jar of your own honey and some quantity recipes and talk to her (it's a her at the school down the street) about using honey. This is where increased honey con-

sumption begins — with local schools and school systems. They periodically fill out a commodity report for the state F + N service, indicating their desire to increase, decrease, or maintain commodity orders based on current usage. When local systems start bumping up their orders for honey, then the states F + N responds by increasing its order to USDA.

Your local beekeepers association can reorganize or at least encourage contacts with the schools. Local association and individuals can offer complimentary honey bears or other squeeze containers to a school or school system, as has already been done by some.

Nearly 50 ASFSA members were asked the following question by the author at the '85 conference in Philadelphia. "Have any beekeepers from your home state offered any sort of help in using honey?" Only five responded "yes". Two from Pennsylvania said they had received some recipes in the mail, one said that a beekeeper had spoken on a school food service program in Missouri about using honey, and two ladies from Mississippi said honey bears had been donated. Mrs. Charlotte Garner of Pascagoula said that Mr. Robert Strickler and the Jackson County Beekeepers had been very helpful and had donated several hundred bears that are used continuously in her school system.

Five out of 50. That speaks quite well for 10%. But what about the 90%? Some excellent efforts have been launched. Some good plans are now on the drawing board. But in many locales such plans are not yet even being discussed. The opportunity is there for YOU to have an effect on the outcome of how much and how well honey is used in America's schools. We've talked about activities and possibilities on national, state and local levels and what YOU can do to help an ailing industry — OUR ailing industry — in one of its most important promotions. What will be the outcome? □

Additional Note: Two contributors to the ASFSA booth in Philadelphia were not listed in the credits of Part I. Thanks go to the Polk-Burnett Co, Beekeepers Association and the Indiana State Beekeepers Association.

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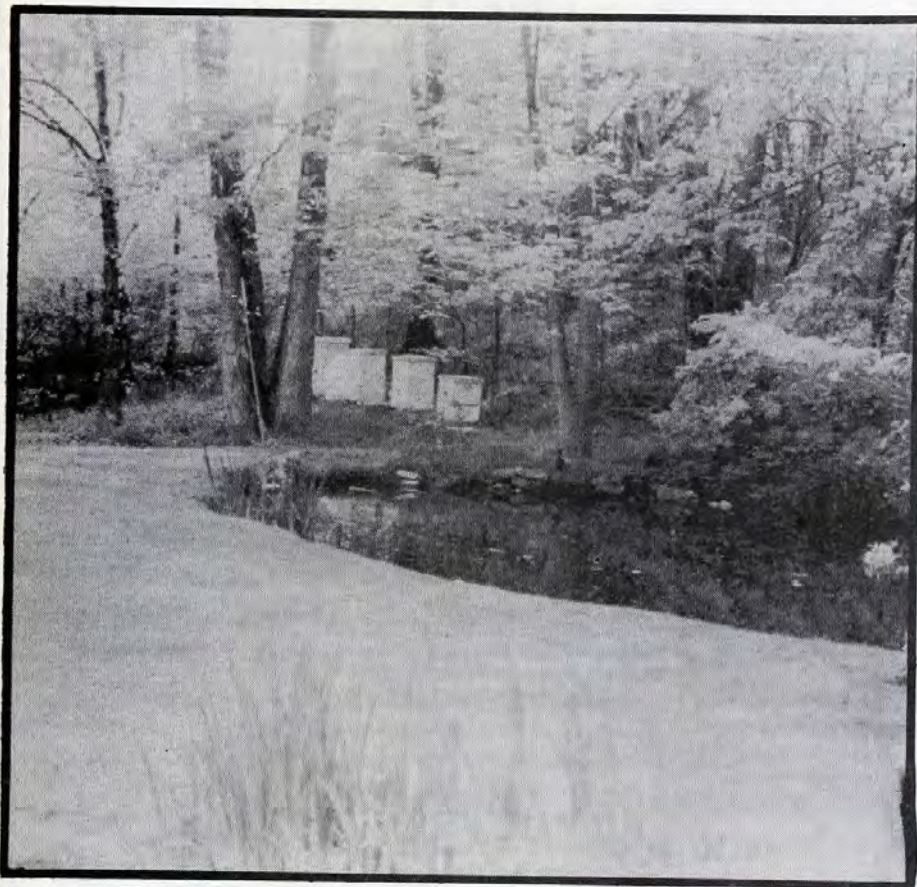
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Photo Contest Winner

by DEWEY M. CARON University of Delaware

This photo of Mae Jean and Jim Roser's apiary in Coatesville, Pennsylvania, was a second place winner in the recent Eastern Apicultural Society Photography Contest. The Roser's were hosts of the May Chester County (PA) Beekeepers Association meeting. I was the speaker on swarming and swarm control. I couldn't resist this photo opportunity following the meeting. Members also brought plants to the meeting for their annual plant exchange.



The 1986 EAS Photography Contest will be held during the Annual EAS gathering. In 1986 the meeting will be at Clayton Hall, University of Delaware, Aug. 6-9, 1986. In addition to a scenic category, where this photo won, there is a class for macro (bee, flower, beekeeping, etc. close up), another for portrait and a fourth category for slide essay (4 to 7 slides telling a beekeeping story.)

Photography is only one of several competitive shows at an EAS meeting. The honey show attracts over 100 entrants each year in 15 classes. The mead show has four classes whereas the beeswax show has six possible classes to enter. Non-professional cooks have 12 classes to ponder when deciding what to prepare for competition. Gadgets, bee beards and an arts and crafts show round out the shows one can enter.

Interested in competing in an EAS Show? I would be happy to send you details on rules, how the entries will be judged and the various classes open to enter. EAS '86 will be Aug. 6-9 at the University of Delaware. Let me send you details, write: Dewey M. Caron, President EAS-86, Dept. of Entomology, University of Delaware, Newark, DE 19717-1303.

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BOOK REVIEW

Leaflet Review — *The Management of Africanized Honeybees* by N. Bradbear and D. De Jong. Four pages. Leaflet 2. 1985. International Bee Research Association, Hill House, Gerrards Cross, Bucks, SL9 0NR, England.

A common sense approach to the management of Africanized honeybees is outlined in this recently released leaflet. Dr. Bradbear is the Information Officer for Tropical Apiculture at the IBRA. Dr. David De Jong has spent over four years in Brazil working exclusively with Africanized bees and the diseases associated with them. He has been in close contact with the commercial beekeepers in the country and learned much from them about colony management.

It is pointed out that in Brazil, and presumably other tropical and subtropical areas, "Africanized bees are more productive than the European races. This productivity can be turned into large number of bees and swarms, or into honey." Bradbear and De Jong continue by emphasizing that swarm prevention methods must be followed carefully as colonies of Africanized bees build their populations more rapidly. "Large Africanized colonies with lots of space can produce a lot of honey." The swarm prevention methods designed for European bees work very well for Africanized bees but only if done on time. If the colonies aren't given space they will swarm excessively.

It is pointed out too that colonies of Africanized bees can be requeened with gentler European queens. However, this may not be financially rewarding since the Europeans do not compete well with the Africans. Hybrids, European queens allowed to mate freely with Africanized drones head colonies that are productive and less defensive than colonies that are wholly Africanized.

Brazilians use larger smokers and are more careful with their dress than are beekeepers accustomed to managing European bees. Colonies must be smoked carefully before being opened. Gloves are not always necessary if one keeps colonies under control. Leather gloves are not recommended when working Africanized bees because they retain stings and alarm odor that angers the bees further. Gloves made of heavy, smooth, light-colored plastic are advised.

Other items covered in this leaflet include selecting apiary sites, controlling absconding by Africanized bees, the use of bait hives and the best hives to use.

Copies of this leaflet are available free of charge to beekeepers in developing countries by writing the IBRA at the above address. No mention is made of the cost to others but I presume it is available on a limited basis. The leaflet is also available in Spanish.

Roger A. Morse
Dept. of Entomology
Cornell University
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*The grace of our Lord
Jesus Christ be with you all.*

Amen. Rev. 22:21

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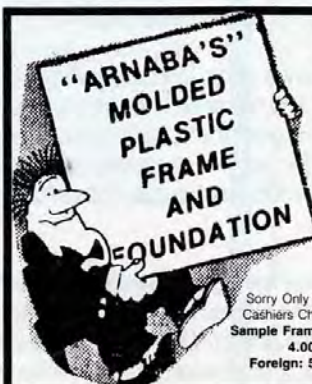
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NOTES FROM THE BEEYARD

Mark Bruner

Thoughts About Doughnuts, Hair Styles and Honeybees.

I've written before about my four-year-old son, Abram, who serves as my trusty hive tool bearer and official honey taste tester. He is a bit impatient, as are most fledgling beekeepers, but that is more than offset by his abundant curiosity: a quality which ultimately distinguishes those who keep bees from those who merely have them.

Abram's most pronounced vice, however, is not the impatience of youth, but the obsessive fondness for doughnuts. He is the only four-year-old in Ohio who is on a first name basis with doughnut proprietors in a three county region. At the age of two he could eat, in one sitting, his own weight in apple fritters, jelly filled bismarks and the ever popular bear claws.

In my efforts to support his habit (at expenses seemingly approaching the national debt!), I've noticed that every doughnut shop he has nagged me into patronizing, sells some type of honey doughnut — usually a honey wholewheat doughnut. Honey wholewheat, just as a name, smacks of so much natural purity that one feels healthier just hearing it. Doughnut waitresses (our contacts in that particular industry) attest to the popularity of such goodies.

Well then — why are all you good folks sitting at home with tubs full of surplus, unsold honey? If you are ever in a Doughnut shop on a weekend, or early in the morning, you'll realize that you usually can't swing a cat by the tail without hitting a doughnut eater. Not only are there doughnut shops in every little hamlet and burg, but they are usually quite busy. Plus: they always have counter space, and they always have people standing at those counters waiting to pig out or pay.

Let me suggest that the local doughnut shop is a fine outlet for honey sales. Strike up a consignment arrangement with the owner. Experiment with different bottling styles, label designs, gift packs, types and colors of honey — see what sells best in your particular market. A phone call once a week will keep you updated on stock status. Because doughnut shops are already selling a honey based product, and because of the convenience of the counter, this is an ideal opportunity to market honey, learn a few things about your market, and make a few bucks with minimal effort.

The same goes with beauty salons and hairdressers. I've lurked around such places waiting for the woman in my life to have her hair teased, tantalized and whoofed. I've noticed that others who are waiting seem only capable of short-term browsing though 1978 issues of *National Enquirer* and often begin wandering about the store looking at merchandise displays usually featuring tacky looking earrings or beauty aids created from exotic plants, herbs and animals. Because honey and beeswax has such a positive connotation in the world of cosmetics, it is reasonable to assume that, here too, counter displays of honey will produce brisk sales.

Several related suggestions: in both these instances, as with any outlet development for hive products, the more educating you can do, the greater your subsequent sales will be. Build for the future — provide free honey recipes, small reprints on honey and wax as ingredients in cosmetics, flyers outlining the health value of honey — anything that the consumer might pick up on and, as a result, become better informed and more likely to buy honey. Always remember to include your name, address and phone number on all free handouts.

Also, due to a general lack of knowledge about honey, you should consider the use of a small label explaining granulation and how to reconstitute honey.

Finally, I would suggest having a small box beside your display, for folks to register for a weekly drawing — the prize of which would be a free jar of honey (or something comparable). Not only will that create goodwill, but it will help you cultivate a mailing list of local customers. Such a list can be used to promote your honey through direct mailings and phone calls. Because the key to a flourishing local retail market is identifying and maintaining a steady list of consumers, this approach to defining a market is extremely valuable.

Remember, having a great product doesn't necessarily do enough to sell that product. The only time the world is likely to beat a path to your door is if you owe the world money. Otherwise, you'll have to do your own creative pathbeating! □

NEWS and EVENTS

Honeybee VII Is A Success

On Saturday, Sept. 21, 1985, Kernersville held its annual Honey Festival at the Fourth of July Park in Kernersville, North Carolina. Bev Olson who is Kernersville recreation director claimed it was the biggest crowd ever!

The Mayor Roger P. Swisher and the festival originator Brady Mullinax officially opened the festivities with short addresses at 10:45. Following the opening there were events for all ages. People flocked to taste a sample of Brady Mullinax's blackberry and sourwood honey. Children were drawn to the puppet shows put on by The Puppet Express and the Tarheel Triad Puppeteers. Also, a play called the "Mirror Man" was given by the Kernersville Little Theatre. Music by six different bands filled the air and there were numerous arts and craft exhibits to see.

Lori Johnson made her first public appearance at the Honey Festival after being crowned Forsyth Honey Queen by the Forsyth Beekeepers Association on September 7, 1985.

Louisiana Will Select Honey Queen For The First Time

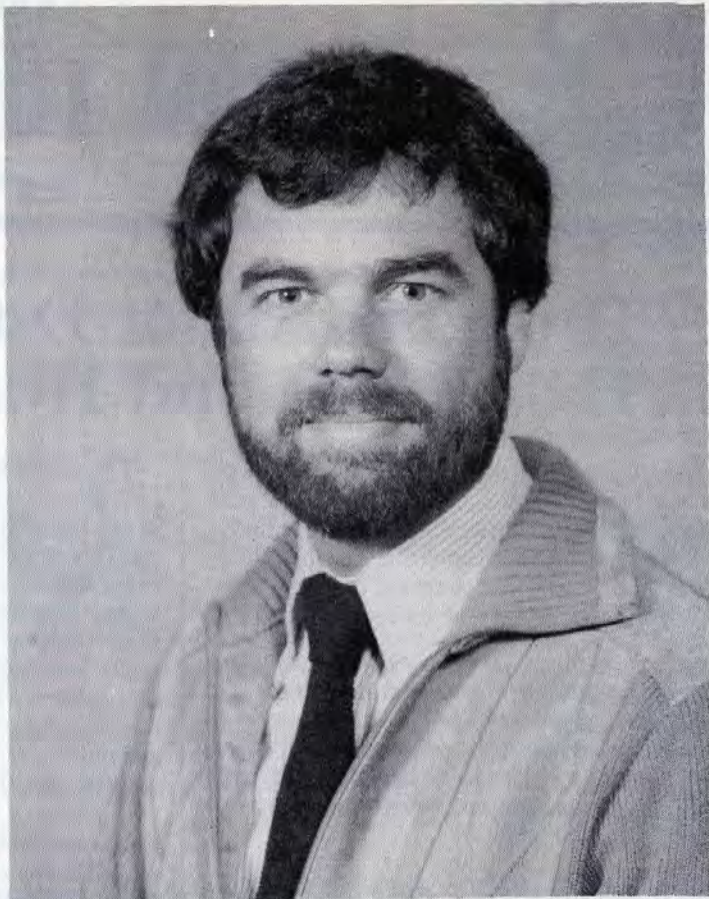
At their annual convention on December 6 & 7th in Lafayette, LA the Progressive Beekeepers Association of Louisiana will hold its first Honey Queen Contest.

Dr. Dale K. Pollet, an entomology specialist with the LA Extension Service at L.S.U., will be a feature speaker on "Terramycin. A Cure or Prevention".

Also, speaking will be David Peasant with the U.S.D.A. Bee Lab who will discuss the "Africanized Bees in the U.S."

There will be many other interesting speakers.

Announcement of the Photo Contest winners will be made at this time.



Dr. Robert Page, Professor of Apiculture, Ohio State University.

Dr. Robert Page has accepted a faculty position in Honey Bee Genetics at the Ohio State University. He replaced Dr. Walter Rothenbuhler who recently retired.

Dr. Page received his Ph.D from the University of California, Davis in 1980. Following graduation he assisted Dr. Harry Laidlaw as a consultant in honey bee genetics to the Egyptian Government in Ciaro. Since March 1981, with the exception of a few months spent in Baton Rouge, Louisiana and Venezuela as part of the USDA Africanized Bee Research Team Dr. page has been a member of the North Central States Bee Research Lab in Madison, Wisconsin.

During his time at Madison, Dr. Page has conducted a number of studies aimed at developing a better understanding of the reproductive biology of honey bees. He served as a consultant to others both here and elsewhere, assisted in or co-taught university courses and developed several computer models.

Dr. Page has published more than 30 specific papers and two book chapters dealing with honey bee genetics, reproduction, behavior, and evolution. He extensive collaboration with Dr. Harry Laidlaw has resulted in the worldwide revitalization of interest in honey bee breeding through the development closed population breeding theory.

Dr. Page is one of the most productive and innovative scientists in Apiculture today. While we at Madison regret Rob's departure, we are proud to have been associated with him and wish him the very best. We are confident that Rob will carry on the tradition of excellence established at Ohio by Dr. Rothenbuhler.

Continued on page 643

A LONDON CITY BEEKEEPER

by ARNOLD and CONNIE KROCHMAL

During our stay in England, the invitation to visit a London beekeeper was extended to us by Jennifer and Harold Harriott, who live in the borough of Kensington-Chelsea, in a lovely three-story row-house.

Jennifer is the family beekeeper, with six hives and one nuc. She has had more, but this is as many as she can handle as queen rearing takes so much of her time.



The Harriott backyard, fenced-in, is about 150 feet by 50 feet long, and also serves as a place to dry clothes and pot plants. Jennifer said the average number of hives in London

was about 10, but many people have only one to three.

Problems are birds which eat the bees, and mice. Woodpeckers have been known to bore holes through the hives to get to the bees, but netting over the hives acts as a deterrent. The smaller wax moth can become a problem when the weather gets very hot — which we can't conceive of being a common happening! Pesticides in the city of London are no problem.

Most London bees are hybrids, or as they are called there, mongrels, with a smaller number of Italians and Caucasians. Importation of bees from the U.S. is prohibited because of the acarapis woodi mites.

English bees seem to work at fairly low temperatures, perhaps as low as 15°C. the past winter was very rough as the weather fluctuated between warm and cold, and the flowers either came late or failed to bloom.

Jennifer estimates average yield per hive at about 120 pounds. Most beekeepers in London share the honey with friends, a few sell some to cover the cost of wax. Jennifer has designed her own solar wax melter, and a set-up for making hand-dipped beeswax candles. Both were in the living room.

Jennifer's garden was planned to provide nectar sources. She has:

TREES

apple
flowering almond
flowering cherry
hawthorn
pear
redbud
willow

SHRUBS & CLIMBERS

buddleia
California lilac
caryopteris
cotoneaster
daphne
escalonia
flowering current
hibiscus
holly
honeysuckle
hyssop
japonica
lavender
loganberry
marjoram
Philadelphus
snowberry
thyme
viburnum
teasel
wallflower

FLOWERS

aubretia
balsam
bluebells
borage
campanula
catmint
comfrey
crocus
dandelion
echinops
evening primrose
forget-me-not
goldenrod
honesty
hyacinth
lily-of-the-valley
sedum
sweet rocket
tansy
weigela

Jennifer herself is allergic to bee stings and takes shots. To maintain good relations with her neighbors her plantings are high enough to lead the bees to fly up and over the neighbors yards, she keeps adequate supplies of fresh

Continued on next page

water for them. On visits she encourages neighbors to have medication for bee stings and explains how to cut off the sting and not to pull it out.

A high point recently was a new neighbor telling Jennifer that the presence of the bees influenced her to buy her home there as the bees added a touch of country living to a city environment.



It is hard to tell where the house ends and bees begin. In the bedroom stacks of supers rise almost to the ceiling. Last year the open window when airing the supers allowed the bees into the house to find the supers after the horse chestnut nectar flow ended. When Jennifer opened the door the room was like a big hive. "That was quite a lesson!" is her good humored comment. □

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Gadgets

I am rather surprised that over the years with all the "Gadgetry" and the "Rube Goldberg" inventions that have come to us back-lotters, no one, to my knowledge, has ever come up with an idea that could be temperature controlled at the entrance of the beehive.

This invention would dictate the size of the entrance at any given time needed by the bees according to the outside temperature at that point in time. Probably it goes without saying that this invention would be only another in the list of headaches to the commercial man. But for us back-lotters, it could mean saving us the trouble and inconvenience of closing down the entrances in the late fall and opening again come warm weather. □

Routine Inspections Of Colonies — Part 2

by TOGE S.K. Johansson and Mildred P. Johansson R.D. 1, Box 256A, East Berne, NY 12059

Determine Condition Of The Queen

Queenright. With the colony population small in the spring, there is a better chance to see the queen. However, finding eggs and brood of various ages is presumptive evidence that a functional queen is present. Even if the queen is seen, it is not possible to judge her condition by inspection. It is suggested that a judgement be made as to the quality of the queen indirectly by evaluating the quantity and appearance of the brood. A specific experience in the author's apiary may be useful to underscore the need for interpretation of the findings of such observations.

The bee inspector who checked our colonies for disease one spring marked one of our colonies as "Should be requeened", and another "Queen OK but needs honey". Since we follow the practice of letting our colonies manage their own requeening, we had the opportunity to see the outcome of a professional's opinion of our colonies. The colony considered to have a good queen did so poorly, even though provided with honey, that we united it to another colony in the fall. The colony considered to require requeening produced more surplus honey than any other colony, and provided a nucleus for increase.

It is likely that the inspector followed the rule of thumb that brood areas interspersed with empty cells, or cells containing honey and pollen, are an indication that something is wrong. If such a spotted or checkered brood pattern is the result of the queen first laying defective eggs which the bees have removed, it is an indication the queen may be carrying a genetic "lethal". In inbred lines used for breeding, defective eggs may be produced in ratios of 25-75%.

What the inspector did not realize is

that in our colonies the queen begins laying eggs in January on combs that have a substantial number of cells containing pollen. This is an ideal arrangement in winter with the temperatures outside the cluster ranging down to -20°F. As the pollen is used by nurse bees feeding larvae in close proximity, the queen lays eggs in the empty cells creating the impression that the queen is laying her eggs in a "haphazard, scattered pattern". When the combs containing brood are used for honey storage, some of the cells out of synchronization will be filled with honey first while others contain capped brood yet to emerge. As the season progresses the queen moves to combs devoid of pollen, and the hoped for solid pattern of bar-to-bar brood can be seen with few if any empty cells. Pollen is then deposited in cells above, below, and at the sides of the brood nest. Capped honey is found in an arch above the pollen. The brood nest begun in the upper hive body is displaced by capped honey and gradually occupies the lower hive body.

Apparently there is no need to be concerned that the presence of pollen will inhibit the development of the colony. The queen is reported to visit each comb in the brood nest several times every day, and will find open cells in which to lay her eggs wherever they occur⁹. An extreme example occurred in a colony we deprived of all drone comb except for some cells overlooked in the outermost comb of honey in the second hive body above the brood nest. The bees removed the honey from the cells, and the queen moved up through the two supers of honey to lay eggs in the drone cells.

Areas of dead brood, if not caused by disease, may be the result of chilling when the cluster contracted during a cold spell, or if the population of bees was suddenly depleted by some disturbance, pesticide poisoning, etc.

Drone layers. The larger cells in the combs with cappings protruding like rounded domes from the surface contain drone pupae. If the season is well along, some of the drones may already have hatched and are seen on the combs or flying around the front of the hive. When the colony is systematically deprived of drone comb, as is sometimes advocated, the bees will build drone comb wherever they can find space, making for messy burr comb. The bees may also tear down the walls of worker foundation provided by the beekeeper and rebuild it into the larger cells of drone comb. The best insurance to secure perfect worker combs from worker foundation is to provide some empty frames in which the bees will build drone comb.

If combs have dome-shaped cappings of drone brood in worker cells, this is an indication the queen has probably run out of sperm and is laying unfertilized eggs in worker cells. Replacing such queens is considered difficult. Laying workers also produce drones, but there is much less drone brood present and the cells may have several eggs placed on the sides of the cells. A normal queen may also lay several eggs in a cell but they will be placed in the bottom of the cell as usual, and indicate a lack of space in which to lay eggs. Laying workers develop when the colony has lost its queen.

Requeening. In a 13 year study in Switzerland, 2-year queens were more prolific, and their colonies produced more honey than colonies headed by 1-year queens¹⁰. The selection of colonies to be requeened might therefore better be made at the end of the second season, or at the beginning of the third season if overwintering characteristics are important in the selection process. It is also important

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to consider whether replacement queens have characteristics compatible with the management required to maximize honey production from nectar sources available in the beekeeper's area. It is possible that queens produced by natural supersedure will be more impressive than those available commercially as a result of hybrid vigor¹¹.

If requeening is contemplated it should be done for a specific reason, and the replacements known to be an improvement over those the colony could produce themselves. In cattle and sheep breeding the prediction is stated in terms of a monetary index value for increased milk production, wool improvement, etc.. When the heritability of traits in bees is known with equal precision, breeding will cease to be a gamble based on subjective judgement. If objective data is not available there is no alternative but to take a chance, and this should be clear in discussions of breeding and promotion of queens. Commercial queens selected for colonies that rear brood in anticipation of early nectar sources, and surpluses of 300 pounds, will be a disaster in areas with late flows and more modest crops. Where sugar for feeding is cheap, and honey expensive, such queens may be an advantage.

Routine spring requeening has been suggested as an effective swarm control measure. The fact that 1/3 to 1/2 of introduced queens are superseded may indicate that their poor performance in egg production may be a factor in constraining the population, and thereby avoid swarming. If the full potential for egg production is not reached until the second season, an annual requeening insures that a larger population that might trigger preparations for swarming is not reached. Although the highest production potential is therefore not attained by keeping the queens through a second season, neither would there be the disastrous loss of production which occurs when colonies swarm—a reasonable trade off.

Assess Colony Size

Whenever the cover of the hive is removed, the bees very quickly fill the

spaces between the combs containing brood to keep it warm. The size of the cluster can therefore be measured in terms of the number of frames covered with bees without removing the frames to risk chilling the brood. Hives with inner covers of glass used in Great Britain make it possible to determine cluster size, and the availability of honey without exposing the colony.

Colonies will usually have three to five combs of brood, or even as many as eight, by the first inspection. A comb of brood is considered to be at least half filled with brood or eggs on each side. The condition of the colony and the weather will make for considerable variations from season to season. A cold, late spring with few occasions for flying will result in larger populations since older bees will have unspent time remaining in their physiological clocks. If the colony is denied a cleansing flight for several weeks, bees severely infected with *Nosema* protozoan will defecate within the hive, a condition described as dysentery, and create conditions favorable for an epidemic of the disease. When able to fly the sick bees often do not return to the hive, thereby lessening the danger of infecting other bees. The spores of *Nosema* are ever-present in the hive and the bodies of bees, but remain dormant until such time as the colony is under stress as during overwintering.

Very small queen-right colonies of 1/2 to two frames of brood can be placed above larger colonies on a partition and provided with a separate entrance. Such small colonies can be used in a 2-queen management system, for increase, or to requeen other colonies. It is considered good practice to maintain 10% as many reserve queens in small colonies as there are producing colonies. Such nuclei are more easily united to colonies that require requeening during the active season than attempting to introduce queens or queen cells alone.

It may be impossible for very small colonies to build up in time to harvest a surplus of honey where the major nectar flow occurs during mid-June. In such regions it is considered prudent to unite colonies with only two frames of brood to other moderate sized colonies. But where the nectar flow is late in the season, or extended over a long

period of time, the potential for small colonies is more hopeful. The author's largest surplus of 100 pounds was obtained from a colony that survived a difficult, long winter with a population that could have fit into a teacup with space to spare. For beekeepers with only one colony there is no choice other than to wait and see what happens. R. Whyte found that when small colonies were united, the populations of the united colonies decreased to that of one of the small colonies prior to being united¹². Packages of bees without a queen can be purchased from the southern breeders to boost population.

The largest colonies found during the spring inspection should be used for the production of a nucleus from each one at the earliest opportunity as a swarm preventative measure. Frames of brood can also be taken from the largest colonies to build up weaker colonies, with those needing the least help being aided first, leaving the weakest until last.

Although beekeepers are generally concerned about building up large populations for short nectar flows of less than two weeks, in localities where there are flows lasting from 60 to 90 days such strong colonies are not an advantage. Smaller colonies rear more brood in proportion to their population than large colonies, and so are able to build up rapidly with a net gain in the populations by the time of the nectar flow. G.D. Morse in New York State found five reasonably strong colonies produced larger, more reliable surpluses than three extra-large colonies¹³.

It is therefore a double benefit to divide the largest colonies by making nuclei, or using some other method. Not only is swarming controlled, but there will be larger populations to harvest nectar than if the colonies had been left intact. In Manitoba colonies with 6-12 frames of bees were divided into two equal parts without affecting the average yield of the parent colonies significantly (222.8 lbs.) compared to undivided colonies (190.0 lbs.) The yield of the daughter colonies provided a 50% increase in the total production (102.7 lb. average). Colonies with more than 12 frames of

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brood that were not divided at the first inspection did less well¹⁴. It should be born in mind that if the colony also occupies the lower brood chamber, it may appear to occupy fewer frames than when it is restricted to the upper brood chamber.

FEED COLONIES SHORT OF STORES

More colonies die for lack of adequate stores than from any other cause. Any colony that does not have at least 20 pounds, or equivalent of three deep frames of honey, should be fed. The easiest method of feeding is to replace empty combs on each side of the brood nest with combs of honey taken from colonies with an excess, or from disease-free dead colonies. If the bees are quivering from starvation, the cells should be opened so that honey is readily accessible. If honey is not available, warm syrup in the ratio of one part sugar to one part hot water by weight can be sprayed into the cells of empty combs, or a paste of sugar and/or granulated honey can be smeared on one face of the comb. Whenever possible feeding should be done late in the day to avoid the danger of inciting robbing, and entrances reduced to suit the size of the colony.

The Doolittle division board (or frame) feeder can be left in the hive all year next to the outer wall and easily filled by shifting the upper hive body over to one side. If removed the feeders will dry and warp, but left in the hive the bees will keep them propolized and leak proof¹⁵. A mastix type glue (plastic roof cement) and dipping in hot wax will produce a good seal when they are assembled. If constructed of masonite hardboard with the rough surface on the inside, a float may not be necessary to prevent bees from drowning. According to R. Salen, bees are less likely to build comb in the feeder if the inside width is $3\frac{1}{4}$ "¹⁶. D. Williams (N.Z.) adds water to dry sugar in frame feeders without mixing¹⁷.

Feeders consisting of inverted glass jars or metal and plastic pails with small holes in the lid can be inverted over a hole in the inner cover, or a piece of cardboard, and kept warm in an empty super by surrounding them

with insulation. A Miller top feeder can be used to feed syrup, dry sugar, or fondant. (Miller added water to dry sugar without mixing)¹⁸.

Dry sugar is an option where humidity is high as along the West Coast. Some beekeepers use bakers' icing sugar containing 8% inverted sugar (Drivert, Amerfond). H.E. Park (Dawson Creek, B.C.) believes that syrup is too cold and feeds Drivert as a fondant. D. Houston (VA) "plops" a slurry of granulated sugar (2 cups moistened with $\frac{1}{4}$ cup water) on a piece of waxed paper and places it on the top bars over the cluster, poking a few holes in the paper for quicker acceptance^{6, 19}. Whatever the method of feeding, once begun it must be continued until a nectar flow begins since feeding stimulates brood rearing and thereby increases food requirements, including pollen. The bees also require a source of clean water near the apiary if there is no permanent supply to dilute honey or sugar.

Pollen. If the queen has free range of two hive bodies (three better), there should be adequate pollen scattered amongst the combs for brood rearing until flowers are available. Where pollen is not available in sufficient quantities, various substitutes have been tried, but these have not proved successful unless 20-25% of dried or frozen pollen is added. The colony apparently reduces its own pollen collection by the amount supplied by the beekeeper²⁰.

Exchange Defective Equipment.

The bottom hive body is usually empty and free of bees at this season, and can be removed for refurbishing. If a whole hive body cannot be removed, empty frames can be substituted for defective ones. When frames needing attention are noticed during the summer, they can be moved to the outside of the hive body for replacement the following spring.

SUMMER INSPECTIONS

The intervals between inspections during the summer will depend upon the availability of nectar and pollen sources, and if weather permits active flight at such times. A colony placed on a platform scale is a useful indicator of gains. Even though there is no appreciable increase in weight, the colonies should be looked at briefly three

to four weeks after the first inspection in the spring to see whether queens are laying normally, brood is healthy, food stores are adequate, and space for brood rearing and nectar is adequate.

When brood is found in the lower hive body, an additional hive body should be added between the brood nest and honey supers to ensure space for brood rearing. If it is intended to restrict the brood nest in two hive bodies with a queen excluder, then the hive bodies may be reversed in order to encourage the bees to fully occupy the combs (after the danger of low temperatures is past). A more conservative manipulation is to exchange two combs of emerging brood for two empty combs from the middle of the lower chamber. Moving empty combs from the sides into the center will also provide immediate space for brood rearing. As the brood chambers fill up with brood, three to four frames of unsealed brood and/or frames of honey can be exchanged for empty frames from the super above the queen excluder. Adding a third hive body for brood rearing in large colonies would be a less disruptive option, and may also reduce the likelihood of conditions that lead to preparations for swarming. This is also the time to provide frames with foundation for building new comb.

It is not possible to provide a schedule of how often the brood nest should be examined since each locality and season is different. In some the major honey flow occurs in June, and in others in August. It may be helpful to use one or two of the largest colonies as indicators of conditions. If swarming is a possibility it will require checking the brood chamber every 8-10 days to search for queen cells. It is usually sufficient to tip the hive bodies on end, and examine the bottoms of the combs where swarm cells are usually built.

The use of a tipping ladder makes it possible to lay the hive down and inspect the brood nest without having to remove the supers first. A magnificent machine developed in New Zealand makes it possible to crack the hive apart, and tilt back as many as four or five full depth supers of honey above the brood chambers²¹. Various hive handling machines, including tripods,

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have been described in the bee journals. The Root "slide-out" brood chamber on silicone lubricated runners avoided the need to remove the honey supers altogether. H. Sacks' hive permits tilting the hive bodies at any desired level by simply opening fasteners between them²².

During the main honey flow, an additional super is placed above the brood nest whenever the previous added super is 3/4 full of nectar or honey. Commercial beekeepers prefer to deal uniformly with all the hives in an apiary, rather than having to assess the condition of the individual colonies. To this end, equalization is secured by interchanging combs of brood from the largest colonies with empty combs from medium sized colonies. Smaller colonies are united. Whenever supers are needed, every colony in the apiary is provided for without making an inspection of each colony first.

Finding queen cells during the summer honey flow does not necessarily mean the colony is preparing to swarm. The queen may have been damaged by the beekeeper during manipulations, or her capacity to lay eggs may have declined due to age or insufficient matings during unfavorable weather or a scarcity of drones. Supersedure cells are usually fewer in number than swarm cells, and the old queen continues to lay eggs (even continuing after the new queen is established). Colonies with supersedure cells should be closed and left undisturbed for a month. At that time the colony can be examined for the presence of eggs and brood as an indication that the queen emerged and mated successfully. Queens may be eaten by birds or dragon flies during their mating flights, or be infertile due to disease or anatomical defects. Long periods of unfavorable weather may induce supersedure through no fault of the queen.

Swarming is the method by which colonies reproduce, so there is little hope of eliminating it by selection. Once begun, only heroic methods that remove the queen and/or brood are of any help. It is therefore better to avoid the crisis by managing the largest colonies as if they were going to swarm **before** they undertake preparations to do so. If larger colonies

are less productive, there is no point in maintaining monstrous populations that create anxiety and extra work to prevent the catastrophic loss of an absconding swarm. It is better that the beekeeper take off the swarm on his own terms by producing a nucleus, interchanging weak and excessively strong colonies, or distributing frames of brood from the largest to smaller colonies.

FALL INSPECTION

When the honey crop is removed, this provides another opportunity to check the brood nest for disease and space. Any colonies too small to survive the winter must be united soon enough to leave time for reorganization. Colonies short of stores can be provided for by giving them combs of honey from those with an excess. If they must be fed, it should be done rapidly to avoid stimulating brood rearing.

In regions where there is a fall flow, it is essential to provide sufficient space for brood rearing and storage of honey for winter stores. Where the fall flow is the only source of surplus, an assessment of whether there will be a surplus to harvest cannot be made until towards the end of the flow. A final inspection for disease and stores should be made before winterizing the colonies. □

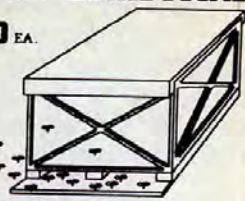
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IN DELAWARE

by DEWEY M. CARON
University of Delaware

Delaware may be the 2nd smallest state firmly wedged in the industrial mid Atlantic States between New Jersey, Pennsylvania and Maryland, but agriculture, including beekeeping, is still important and big business with 11% of the work force of Delaware in agri-business with over one-half of the land (650,000 + acres) actively being framed.

Delaware has both big and small farms. Nearly 1000 farms have annual sales of \$100,000 or more each. Sussex, the largest of three counties, is the birthplace of the American broiler industry and is either the 1st or 2nd ranked county in broiler production in the U.S. In support of the broiler industry, there is extensive corn and soybean acreage across the states three counties as well as in neighboring counties of Maryland and Virginia in one large fertile, largely flat growing area called the Delmarva Peninsula.

Beekeepers benefit from soybeans grown for chickens but it is the 3rd aspect of Agriculture in Delaware that beekeepers best serve and derive benefit from — the extensive fruit and vegetable truck farms of the Peninsula. It is possible, with only a short colony move, to secure two pollination rentals and two honey crops in Delaware — and many beekeepers keep their bee colonies on trailers or wagons to take advantage of the growing practices of their farming neighbors.

Delaware calls itself "The First State" as well as "Small Wonder". They were, in fact, the first of the 13 original colonies to sign, on Dec. 7, 1787, the new Federal Constitution developed by the Continental Congress in Philadelphia. Today the Northern-most county of New Castle is smack in the populous Boston —

New York — Washington corridor and over 1/2 the 800,000+ citizens of Delaware live in communities originally settled by Swedish and Dutch immigrants. The portion of Delaware below the Chesapeake and Delaware Canal and the vast majority of the two lower counties (Kent and Sussex) are still rural and primarily agriculturally oriented.

Delaware's estimated 300 beekeepers are hobbyists and sideliners. They are doctors, carpenters, government workers, students, farmers and of a hundred other occupations all with the common interest in keeping one to 100 or so bee colonies. Not all sell their honey harvest, but of those that do, the vast majority sell their products locally, particularly at roadside stands. Some beekeepers operate their own roadside markets selling not only honey from their bees but other produce they grow, but most service stands maintained by others.

There is a non-agriculturally based nectar flow in Delaware but it is an early one. Being low (the highest point in the state, Mt. Cuba, is only 800 ft.), early pollen sources are not usually a problem across the state. Winters are mild and colonies winter easily. Spring build up must be rapid since tulip poplar and locust bloom in early May. Roadside weeds and lawn clovers extended the nectar flow to June but after that little nectar is available for backyard colonies until fall flowers bloom in late August-September. With the early nectar flow, many colonies build up on the nectar flow rather than store it as surplus.

Fruit orchards offer some early pollination rentals for Delaware beekeepers. Delaware was once a

major peach state but an insect-transmitted blight nearly wiped out every tree in the 1930's. Today blight resistant varieties are grown in a few apple orchards scattered across the three counties. Brambles and blueberries, including pick-your-own operators, are increasingly popular. Acreage is still low so many growers do not need to rent colonies.

By late June and July, pollination rentals are available in cucurbits — especially cucumber, cantalope and watermelons. A few beekeepers get double rentals with varied planting dates and some destruct harvest cucumber acreage that need higher populations of rental bees for a shorter time. If growers would provide adequate bees for pollination as per recommendations, there would be too few colonies available for the growers.

Summer honey sources in Delaware are related to agricultural crops. Soybeans provide some surplus honey at some locations. There is a great deal of variation in attraction to honey bees by soybean variety as shown in studies in the midwest and our own studies conducted by the University. Due to this and other factors, beekeepers generally do not move their own colonies to soybean fields. Beekeepers near such fields are the ones who benefit and obtain surplus honey.

Beekeepers in Delaware and surrounding neighboring states move bee colonies to lima bean fields. Lima bean yields a light honey that remains high in moisture content. It is usually reliable, yielding a super or more of honey for the beekeeper. With better IPM-based insect control on lima's, the risk of pesticide losses to bee colonies

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Continued from previous page/Beekeeping in Delaware

have been decreased. (I reviewed lima's as a honey plant in the August 1985 Gleanings.)

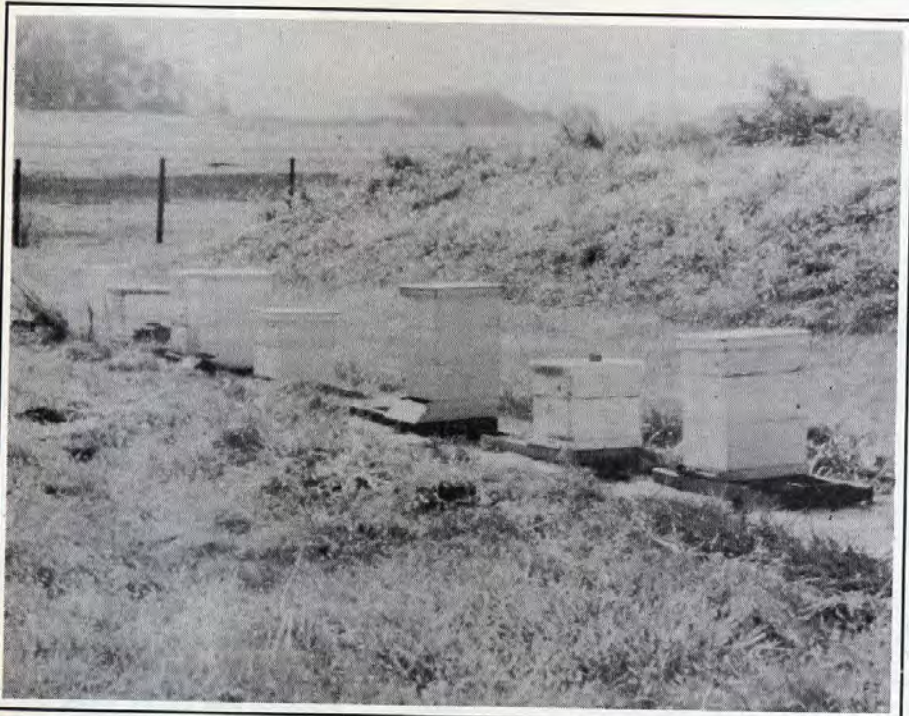
Delaware's fall wild flowers are generally adequate to provide enough stores for overwintering of bee colonies. Some beekeepers supplement winter stores by feeding sugar syrup. In addition to goldenrod and asters, several fall blooming flowers in the wetter, marshy areas of the state such as *Bidens* and sweet

pepper bush provides the bulk of the fall nectar sources.

In the coming year, Delaware beekeepers take on an important challenge in hosting the annual Eastern Apicultural Society meeting. The meeting will be held at the University of Delaware Clayton Hall complex, a specially designed facility for meetings of this sort. Participants will stay in one of the three high-rise dormitories where accommodations are a complex of bedroom, living room, kitchenette and bathroom, all air conditioned. The dorms overlook Clayton Hall where a multitude of rooms is available from a 700 seat auditorium, a banquet facility other rooms accommodating the numerous EAS competitive shows (honey, beeswax, bakery products, mead, gadgets and photography) and rooms for workshops on topics from bee management to use of bee products like mead and beeswax.

Plan to attend EAS-86 Delaware, August 6-9, 1986. Come see Delaware's agriculture, visit our beekeepers, stay for awhile to see our beautiful Atlantic Ocean beaches or the many historic sites of the state. Delaware, the FIRST STATE, is a good

beekeeping state with a wide and varied flora available to our bees. We may be a "Small Wonder" — just as we could label our honey bees but that just makes it easier to see and do more in a shorter time. The Beekeepers of Delaware welcome you. □



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by KATHY & ROGER HULTGREN

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Christmas has always been a time for family projects and this one is sure to be high on your list.

The idea is simple, it's making beeswax Christmas ornaments utilizing candy molds. Prior to W.W.I, these ornaments would arrive from Europe in time for the holidays. With the war their importation ceased and never resumed. The imported ornaments prior to this time were probably stored in the attic. After years of such storage, the heat from this location melted them and the idea for such a decoration was lost. With the candy molds, the project becomes a breeze. The molds hold a small amount of wax which solidifies in minutes. Even the most anxious child will find patience with the ornaments ready to pop out 10 to 15 minutes after being placed in the freezer. Why not schedule a family evening of fun and discover a novel use for your beeswax.

You will need candy molds, beeswax, a pot, 3 glass jars, oven mitt, newspaper, wire cutters, wire (the wire used to wire the foundation is excellent) and a heating element.

Chop your beeswax into peices, place three small glass jars into a pot of water and then add the pieces of wax to the jars. This method allows one to keep small amounts of the wax always melted and ready to be poured.

While waiting for the wax to melt, cut the wire about 1 1/4 to 2" in length and shape into U's. These pieces will be used for hooks.

Prepare your work surface by covering the area with newspaper. If the molds have an indentation for a lollipop stick, simply cover this area from the side over the point where the stick is placed. Two layers of masking tape seem to work fine.

Pour wax into molds and within minutes one will see the wax start to solidify. Push small U-shaped wire (upside-down) into the wax to form a hook.

After wax is set somewhat, place candy molds into the freezer for about 10 to 20 minutes. This hardens the wax and allows the molds to pop out with ease.

After removing the molds, inspect for air bubbles, dirt, etc. If the mold is not to your liking, simply extract the hook, remelt the mold, strain through a nylon to remove impurities and repeat the process.

Your end product can be used as a Christmas tree ornament or to

replace a bow on this year's Christmas presents for a little something extra for that special someone on your list.

These ornaments may also be painted with acrylic paint. □

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Bee Talk

By RICHARD TAYLOR
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I've introduced a lot of people to beekeeping over the years, but I have come to doubt the wisdom of it. I used to think that all you had to do was show someone a hive of bees and he would instantly become infected with a lifelong enthusiasm, or "bee fever," as I was. Of course, it doesn't work that way. Those who take up the craft usually do not stay with it in any serious way for very long. The bees, after a season or two, become neglected in favor of more enchanting pursuits. Comb honey supers added one season are still on the hives the next spring, a dark, granulated, forbidding mess. Hives get broken are not repaired, and weeds grow up around them. The apiary becomes derelict. But of course, bees, unlike other livestock, easily survive neglect, producing, year after year, nothing but swarms.

I think the many failures among my students of beekeeping are partially compensated for by the one outstanding success, however, for this one has, in the course of about ten years, gone on to become one of the most skillful and resourceful beekeepers I have ever seen. Not only is he knowledgeable about bees and clever and inventive in the management of them, he is also creative in his promotion of hive products. The result of all this is that his side-line pursuit is highly profitable, contributing substantially to his livelihood and to the comfort of his large family. And this, I think, is precisely what beekeeping at its very best should be: A profitable sideline, where the emphasis is on expertise and individual resourcefulness, aimed at getting the maximum crop from just a few well-managed apiaries, and then selling it at the top price.

This bee master is Mr. Duane Waid, of nearby Interlaken. His interest in bees was born several years ago when I went around to his printing shop to get something printed up in connection with my own beekeeping. That started him reading up on bees,

out of curiosity, and the rest just followed. I never offered him much actual instruction other than answering occasional questions the first couple of years.

I had a good talk with Mr. Waid recently, and it occurred to me that some of his methods should be passed on to a larger audience. There are plenty of beekeepers who can talk about bees and who can produce good honey crops, as Mr. Waid does, but no so many are as good at selling the crops and making the enterprise profitable.

Mr. Waid's honey house is a converted house trailer, and from there he works eight far-flung apiaries. When the extracting supers come in they are stacked on a frame and warm air is circulated through them with a squirrel cage fan for a day or so, to reduce moisture. The honey is warmed only enough for straining. Heating is scrupulously avoided, in order to preserve flavor. Mr. Waid considers this basic to successful beekeeping. Honey that granulates in five-gallon cans is reliquified in an ingenious warmer he built. This is nothing but a plywood insulated box which holds two cans and is warmed by two one-hundred watt bulbs. That's all the heat you need with an insulated box.

A considerable part of the fall crop is drawn into small plastic containers with transparent lids. These, holding only a half pound each, are set in the cool basement for a few days where the honey granulates, then labeled and sold for \$1.75 each — a very good price for honey. And they sell fast. In order to get the best and fastest granulation of this product, Mr. Waid mixes in about ten percent of finely granulated honey, before it is drawn off into the plastic containers.

Comb honey is produced in round sections and vigorously promoted. Mr. Waid's first effort at comb honey pro-

duction was by the shook swarm method, and so great was his success that he won the blue ribbon for this class at the Eastern Apicultural Society honey show that year.

Mr. Waid sells about half his total crop at a nearby farmer's market, where produce from the area is offered to the public, by those who produce it, every Saturday morning. The secret of selling honey this way, he says, is by displaying it in great abundance. If you just set out a half dozen or so sections of comb honey, for example, then they will probably still be there when you gather things up to go home. But if you pile up thirty or forty, then people will get in line to buy them. This is Mr. Waid's basic principle for selling all his hive products, whether they be honey, beeswax cakes, or candles. Have a big display, with lots of everything — that is the single strongest inducement to purchasers.

About a fourth of his crop is sold right in his print shop, where a large and attractive display of honey, beeswax and candles is always maintained. Beeswax blocks are molded in ordinary plastic refrigerator ice cube trays. These sell for a quarter. He gets about nine dollars a pound for the rest of his wax, by converting it to candles. The beautiful candles, without added designs or coloring, are made from standard candle molds. Mr. Waid told me of one occasion when some unknown impurity in the wax caused the candles to come out darkened almost to the point of being black — a total loss, it would seem. But he turned this minor disaster to his profit by remelting the wax, adding a few drops of bayberry scent, and making bayberry-scented candles. There was nothing misleading in this, for they were offered as bayberry-scented candles, which was exactly correct, and the demand was so great that he could not meet it. It is just this kind of resourcefulness that accounts for Mr. Waid's constant success as a beekeeper who makes money from his craft.

The remaining fourth of his crop is wholesaled to shops and fruit stands. Here the principles of success are quality, abundant displays and, of course, good relationships with the proprietors.

Continued on next page



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Continued from previous page — BEE TALK



Duane Waid, Sideline Beekeeper

Mr. Waid's printing business contributes also to his bee business. There are lots of flyers, and honey recipes given out in quantity. He also does a small business in honey labels, having developed a system whereby beekeepers can, with the materials he supplies, combine them in such a way as to design their own labels.

One sales technique Mr. Waid has developed with considerable success is gift packs. These, even when they are quite simple, command a special price and sell vigorously. One gift pack consists of three half-pound jars of different honeys, packed together in a special but simple container. This brings three dollars. Another consists of one honey bear, two half-pound jars and one round comb section, for \$7.50. The principle at work here is, of course, that people buy when they like what they see.

Mr. Waid is a very good source of ideas. He seems to me the perfect example of just what a beekeeper should be — a skillful apiarist, a thoroughly-read student of bee culture, and a good salesman.

[Questions and comments are invited. Please use Trumansburg address and enclose stamped and addressed envelope].

The New Zealand Beekeeper

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Of Bees and Miracles

by WAYNE B. DOW

14 Southern Ave.

Augusta, ME 04330

Some nineteen hundred and eighty years ago a miracle occurred in the little town of Bethlehem. To the Virgin Mary and Joseph was born a babe who would become the Saviour who would die for our sins. All Christianity acknowledges that this coming of the Saviour heralded the beginning of a new, better era, one in which we are encouraged to "love our fellow man."

We assume that soon after the birth, as had been the custom for hundreds if not thousands of years, the baby Jesus was fed "curds and honey." We are told that "he who will not give honey to children sins against Mary and Joseph, the parents of the Christ-child." And from the Germany of the Middle Ages comes the statement that "A true Bienenvater (bee-master) when he takes honey gives some to his neighbors, because the bees have taken the nectar from their flowers; if he does not give any away, in the next season he will have a bad harvest. He who refuses honey to the sick will also next season have sick bees and empty combs."

Thus we reference to what may be considered an earlier, much earlier, miracle. There may be doubt in some quarters that bees always love their fellows, because of, under some conditions, the tendency toward robbing, together with the consequent fighting, but certainly the presence of bees in pre-Biblical times cannot be questioned. At least 1300 years before Christ, Moses was told by the Lord, "And I have said, I will bring you up out of the

affliction of Egypt unto the land of the Canaanites, — unto a land flowing with milk and honey." (Ex. 3:17)

Forty years passed, with many trials and tribulations before the Israelites crossed the Red Sea and arrived in the Canaan that is now southern Palestine.

The Egypt the Israelites were leaving had much earlier become perhaps the first country to practice agriculture and cattle raising on any large scale. And with agriculture came the bees

honey. These hollow cylinders were about 30 inches long and ten inches in diameter. (Straw skeps, originally of Germany, apparently did not arrive on the scene until around 700 A.D.) Hollow logs, where wood was available, were also used for hives. The Nile was not only used to transport hives; quite often colonies were moved to more favorable seasonal locations and the bees flown directly from the boats or rafts for a few weeks. At the end of a nectar season the cylinders were weighed and the heavy ones smoked with brimstone to kill the bees, thus making the honey easily available.

That beekeeping was of significant importance is amply demonstrated when we learn of the union around 3500 B.C. of the two countries of Upper and Lower Egypt under one ruler. This king immediately combined the symbol of Upper Egypt (the reed) with the bee of Lower Egypt into one hieroglyph. This union must have been eminently profitable as attested by the fact that Pharaoh Rameses III at one time collected as tribute "20,800 jars, each containing "

1/2 hin and 1,040 jars of 1 hin for the Nile god (a hin equals about 3/4 liter), besides 7,050 jars of honey for cakes" be be presented to the priests for their religious rites. Miracle or not, beekeeping among the ancients was indeed "big business!"

Enormous quantities of honey and wax were required not only for these

Continued on next page



needed for pollination. The Egyptians apparently realized that the honey flow started earlier in Upper Egypt. Perhaps also that the crops fared better with seasonal relocations of bee colonies; we doubt that they had scientific knowledge of pollination. At any rate they transported their cylindrical hives made of clay mixed with chopped straw up and down the Nile Valley by raft and donkeyback as desired to obtain better and/or more

Continued from previous page

religious services, but also for candle-making, and sorcery, (making images on one's enemies out of wax and then sticking pins into or melting various parts of the body to cause afflictions of corresponding portions of such enemies' anatomy, without the sorcerer becoming personally involved in their injury or demise). The casting of bronze weapons took thousands of pounds of wax, to say nothing of the amounts needed for mummification. In an old Persian manuscript there is a method given for making an artificial mummy: "Find a ruddy, red-haired man and feed him till he is thirty years old on fruit; then drown him in a stone vessel which is filled with honey and drugs, and seal up the vessel. When it is opened after one hundred and fifty years the honey will have turned the body into a mummy!" History does not relate whether this recipe was ever carried out but it is known that honey was used for preserving the dead in sealed jars.

Honey was also used to pay a father for the presentation of his daughter as a bride as well as in various cures. The belief that honey is effective in the treatment of human maladies is far from being of modern origin. The ancients attributed to it miraculous powers of curing even though they had no scientific proof, even as we in the twentieth century. Although we are unable to find reference to the treatment of arthritis with bee venom by the ancients there are many instances where credit is given to the beneficial effects of honey and beeswax. They were generally believed to have curative powers not only for sore throats and colds but also in the treatment of gout, heart diseases, and eye disorders.

Bee venom therapy today does have its adherents. Charles Mraz of Middlebury, Vermont, a beekeeper of long standing, and a frequent contributor to *Gleanings In Bee Culture*, is gaining believers in his theory that bee stings relieve the pain of arthritis. And he quotes in the October 1982 issue from *Lancet*, the respected British medical journal. "Honey is much more effective than the expensive topical antibiotics which we used previously. The patient's acceptance of the method is excellent once she overcomes her initial surprise at the apparently

ridiculous method of treatment." (Pouring honey over a surgical wound.)

Once cured of his particular ailments the ancient could celebrate by experiencing the exhilaration arising from copious drafts of the sparkling fermented drink we know as mead. And although not related directly to honey and wax the young man or woman of Germany in the 1600's had only to lead the other close by a beehive to determine the chastity of one's intended. For it was common knowledge that bees never sting the pure in heart. Ah, me!

The fact that bees collect nectar which is secreted by many plants did not become known for thousands of years. The belief that honey came down from the skies like the manna of the Bible to be collected from the plants by the bees was very general. The great philosopher and author Seneca wrote shortly after the birth of Christ: "It is our duty to copy the bees, who fly from flower to flower to gather honey. They carry home their harvest and place it in the combs. We are, however, not quite clear if the juice which they take from the flowers is ready-made honey, or whether by mixing some substance with it, or by means of some peculiarity of their breath, they change the material into honey." Seneca was nearly on the right track and might have reached the correct conclusions a thousand years ahead of time had he not incurred the displeasure of the Roman Emperor Nero, who consequently forced him to commit suicide!

For many years not only was the manner in which honey was produced debated but even the very origin of the bees themselves. The theory that bees were initiated from the decaying carcass of an animal existed until the 17th century in some areas. The poet Virgil in his fourth Georgic says: "Shut the bruised body (of a bullock beaten to death) up in a closed room strewn with thyme and cassia, and after nine days the softened bones having fermented, wondrous creatures will appear, who with buzzing wings will fly into the air — a swarm of bees."

It is obvious that Virgil, along with many beekeepers both before and after his time (70-19 B.C.) observed

maggots developing and drone flies hovering around the decaying carcasses, and incorrectly concluded that they were bees in the making.

Additionally, according to Judges 14:8,9, Samson, he of the great power in his flowing tresses, "turned aside to see the carcass of the lion; and, behold, there was a swarm of bees and honey in the carcass of the lion. And he took thereof in his hands and went on eating, and came to his father and mother, and he gave them and they did eat; but he told them not that he had taken the honey out of the carcass of the lion." Besides being strong Samson was also exceedingly discreet!

With reference to our early paragraphs, whether the presence of bees in our world can be considered a miracle may, perhaps, be debated. But that this apicultural society may be presented as nearly ideal should be readily accepted. Here is a group that exists only for the good of the whole. Every individual is dedicated to his reason for being. The queen (in early times thought to be King) is a benevolent despot; only her presence is needed to assure that the nurse bees feed the eggs and cap the cells, the guards stand at the entrances of the hive to repel boarders (robbers), the workers literally fly their wings off in their efforts for the common cause, and the necessary drone fulfills his single purpose as required, dying in the process, only briefly preceding his brothers who are forced out in the fall as being non-productive.

Although our modern world seems headed more and more toward socialism, minus the benevolency, we suspect that few among us would be likely to give up our "fun" and materialism even to secure the advantages of the ordered world.

Still, wouldn't it be nice, if just for a little while, as in the hive we could be sure our neighbor could always be trusted, that he was never greedy, and was always working for the betterment of mankind. This would indeed be another miracle and true cause to hold our glasses high and drink from "the nectar of the gods."

Reference

THE SACRED BEE by Hilda Ransome, Garden Press, *Gleanings In Bee Culture* Oct. '82. The A.I. Root Company.

Ethylene Oxide

The United States Environmental Protection Agency is withdrawing ethylene oxide from the Label Improvement Program requirements. The Occupational Safety and Health Administration has issued an occupational exposure standard for EtO. The agency is developing language that will be consistent with and complimentary to the O.S.H.A. standard. EtO label registrants at this point need to take no further action to comply with the requirement of PR notice 84-5 and should await agency instructions before revising their labels.

The American Honey Producers Association Tentative Convention Program

Seventeenth Annual Convention
The Holiday Inn — Civic Center

WEDNESDAY, JANUARY 8, 1986

9:00 a.m. Registration — All day
Executive Committee
Set up Exhibits

12:00 noon

1:30 p.m. Board of Directors

5:00 p.m. Convention Committee Meetings

8:00 p.m. Get Acquainted Reception

THURSDAY, JANUARY 9, 1986

8:00 a.m. Registration

9:00 a.m. Call to Order — Glenn Gibson, Pres., AHPA

Invocation

Presentation of the Flag

Welcome

Response — Richard Adey, Vice Pres., AHPA

9:30 a.m. President's Address — Glenn Gibson

10:00 a.m. Shopping and Lunch in Juarez

10:00 a.m. Glen Stanley, Iowa State Apiarist, Des Moines, Iowa
"Negative Publicity, Administration Opposition, Biased Reports, Etc."

10:30 a.m. Break

11:00 a.m. Tom Ross, Ross Rounds, Massillon, Ohio "Comb Honey Production with Round Plastic Sections"

11:30 a.m. Richard Cowen, Animal and Plant Inspection Service, USDA, Hyattsville, Maryland — "Our Experience with Africanized Bees in California"

12:00 noon

1:30 p.m. Dr. M.D. Levin, Director, Carl Hayden Bee Research Center, Tucson, Arizona — "Value of Honey Bee Pollination To Agriculture and the Environment"

2:15 p.m. Dr. Mary Kenney, Agricultural Marketing Service, USDA, Washington, D.C. — "Generic Promotion In The Food Systems"

3:15 p.m. Break

3:30 p.m. Dr. Eric Erickson, Director, Bee Research Lab, Madison, Wisconsin — "Updating Pesticide Research at Madison"

4:00 p.m. Dr. H. Shimanuki, Director, Bioenvironmental Bee Lab, Beltsville, Maryland — "Future Research at Beltsville"

4:30 p.m. Dr. W.T. Wilson, Director, ARS, Honey Bee Research, Weslaco, Texas — "Updating Mite Research"

7:30 p.m. An Evening with Jack Meyer and Jim Ross — "Tomorrow's Beekeeping — Politically and Economically"

FRIDAY, JANUARY 10, 1986

9:00 a.m. Dr. Elbert Jaycox, New Mexico State University, Las Cruces, New Mexico — "We Need a Quick Method of Introducing Queens"

9:45 a.m. Richard Cowden, Animal and Plant Health Inspection Service, USDA, Hyattsville, Maryland — "Updating our Regulatory Program for Mites"

10:30 a.m. Break

11:00 a.m. Richard Goldberg, Assistant Secretary of Agriculture, Commodity Programs and Foreign Agriculture, Washington, D.C. — "Honey Support Program for 1986"

11:30 a.m. (Speaker unconfirmed) — U.S. Trade Representative, Washington, D.C. — "Administration of International Honey Trading"

12:00 noon

1:30 p.m. "OUR FUTURE UNDER THE ADMINISTRATION'S FREE TRADE POLICY" — A Panel Discussion — Glen Stanley-Moderator; Ralph Gamber, Honey Packer, Lancaster Pennsylvania; Rick Krueger, President, Valley Honey Association, Stockton, California; Brett Adey, Honey Producer, Bruce, South Dakota; Richard Harrell, Queen Breeder and Honey Producer, Hayneville, Alabama; Ray Buell, Honey Producer and Pollinator, Milford, Michigan; Tim Dadant, Supply Dealer, Hamilton, Illinois.

4:30 p.m. Questions & Answers

6:00 p.m. Fun Night in Juarez

SATURDAY, JANUARY 11, 1986

9:00 a.m. Joe Parkhill, Berryville, Arkansas — "Pollen for Human Consumption"

9:30 a.m. Tim Dadant — Dadant & Sons, Hamilton, Illinois — "Feeding High Fructose Syrup"

10:00 a.m. Tom Rinderer, Director, Baton Rouge Bee Lab, Baton Rouge, Louisiana — "Updating Africanized Bee Studies"

10:30 a.m. Break

11:00 a.m. Jerry Cole, President, New Mexico Beekeepers Association — "Congressional Contact as an Association President"

11:30 a.m. Joe Graham, Editor, American Bee Journal, Hamilton, Illinois — "Our Editorial Policy on Washington Projects"

12:00 noon

1:00 p.m. Glenn Burkett, Honey Producer, Burlington, Iowa — "My Brief Lobbying Experience"

1:30 p.m. Jack Meyer, Jr., Madison, South Dakota — "The AHPA Award Policy"

2:00 p.m. Richard Adey, AHPA, Vice President — "The Washington Legislative Report"

2:30 p.m. Business Session — General Assembly

Secretary-Treasurer Report

Resolutions

Committee Reports

Old and New Business

4:00 p.m. Board of Directors

Resolutions

Election of Officers

7:00 p.m. Banquet

SUNDAY, JANUARY 12, 1986

9:00 a.m. Executive Committee

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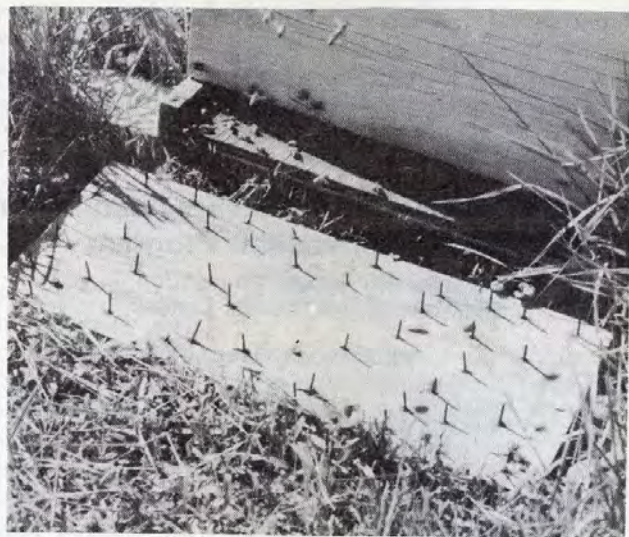
SKUNKS

by VIATEUR CHARRON 20380 Victor St. Janvier Mirabel, Quebec Canada JON 1LO

If you are a beekeeper and have ever encountered any problems with skunks, hopefully, this information will help you. I have been a beekeeper for 51 years. Now that I've retired I still keep a few hives (five to be exact). As far back as I can remember I have always had a problem with skunks. So, for the past five years I've been watching them at every hour of the night with a spot-light. The little devils don't even pay attention to the bright light, they're too busy eating bees. First they scratch the grass around the hive, which really irritates the bees, especially if it's Kiki-weed. The bees become very aggressive when irritated by this scratching noise and they come out of the hive to see what's going on. Of course the skunk is smart and knows that the bees will be coming out, and as soon as they do, he smashes them in the grass and eats them.



All nails driven completely through the board.



Skunk board in front of hive.

Of course, skunks do eat other insects, but I prefer them to stay away from my bees! That's what led me to come up with this invention and eliminate the problem of skunks. The directions are as follows:

You'll need a piece of 3/8 or 1/2 inch plywood. This plywood should be six inches wide by 18 inches long. Then drive nails in the board every two inches apart. Be sure that the nails stick out the other side. Then place it flat in front of the hive. (You can drive a 4" spike into the ground to keep the board in place).

Now when the skunks come up to the hive at night to scratch, they scratch the board with nails. Believe me, they learn quickly. You won't have anymore problems with skunks, I guarantee it. □

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Glimpses of Chinese Apiculture

by LEONORE M. BRAVO

At the end of sightseeing in Peking, which included climbing one of the peaks of the world and space famous Great Wall, we had the pleasure of visiting the Apicultural Research Station of the Institute of Apiculture of the Chinese Academy of the Agricultural Sciences.

Our group of 15 WAS members, ably led by David Cressler, was most hospitably received by Dr. Ma De Feng, director of the Academy, and members of his staff with the customary hot tea. Speaking through our CITS guide who acted as interpreter, they informed us that there are 100,000 beekeepers in China most of whom have a few hives, 20 to 30, with a few migratory beekeepers having 100-400. Two-thirds of the colonies are of European bees, *A. mellifera*, kept in moveable frame hives like ours. We were told that the beekeepers made their own hives using patterns provided, except in the case of large operators in which case they were produced in a workshop.

On the way to the Great Wall, a sharp-eyed beekeeper in our group, George Eisele, spotted some beehives hidden under a tree some distance from the road. We prevailed upon the driver to let us get out and examine them. They were empty of bees, but they were indeed like ours.

The other third of the country's beekeepers keep *Apis cerana*, which they call the Chinese bee, in native hives. In the slide show which was now in progress, we saw what looked to me like the cut half of a five gallon drum painted yellow on the outside which contained moveable frames covered with definitely smaller bees than *A. mellifera*. We were told in response to earlier questions about woodenware that the Chinese were very clever and could make their own. Presumably the farmer with a few hives would adapt any material on hand to his purposes.

We learned that *A. cerana* will work in the winter time, which the European bee does not, and works some important native plants which are not favored by the Europeans. The Lichee tree, which furnishes the beloved Lichee nut of San Francisco's Chinatown shops, is one such plant. In working it, the bees produce a wonderful honey of the same flavor as the fruit which they said was greatly prized by Hong Kong people. It also works the "Chinese date", which the interpreter referred to as "jujuba", the flower of which looked like the Euphorbiaceae. It grows in the North of China. Other important plants worked by *A. cerana* are parts of the Chinese chapparal. The name given for one was *Eulia*, the other looked like the Lily of the Valley tree.

Rape is a principal commercial honey plant and of primary economic importance for the cooking oil which it produces. Oil, rice and other grains are among the rationed foods of China at this time. Three million hectares are planted to it over a wide area of the land. We were informed that the bees begin working it in the South in the spring, and are trucked North as it blooms further and further in that direction. It furnishes "bee flour" for brood build up, which is what the Chinese call pollen. It blooms over a period of five months.

Similarly, *Robina pseudoacacia*, growing in the center of China and to the North, occupies two million hectares, and the bees are trucked northward to follow its bloom. It is a principal honey plant, the honey being called "acacia", as in Hungary. Sometimes, bees are moved by train. An informant in a commune which we visited near Shanghai where Rape is grown, told us that all the beehives and beekeepers had gone away on the train. He said that they had taken them to Yunnan, a province in Southwest China where there was a honey flow all year. Because feeding sugar would be expensive.

The Linden tree of the North, *Tillia sp.*, was rated by the staff as the source of their best honey for export, being especially favored by the Japanese, a principal market. In the slides that they showed us of plants benefitting from pollination and contributing to honey production we saw apple, peach, persimmon, and orange blossoms. Also contributing to China's apicultural products were alfalfa, sweet clover, vetch, Trifolium, and red clover. Our hosts commented that some of the latter were plowed under as fertilizer plants.

In the beautiful slides that they had set up to show us we also recognized sunflower, cotton, buckwheat, soy beans, and *Eucalyptus robusta*.

We also saw from the slide presentation that China has a big package bee industry. With a big population to employ and not enough jobs, most work is done by hand. Slides were shown of bees being brushed off combs by hand. I asked if the farmers did the extracting or if the honey was taken to a central place to be extracted. The answer was that the extracting was done by the farmers using extractors and then taken to a central processing plant. Practically all of China's honey is exported. Staff indicated that the Chinese use honey only as a medicine, laxative was indicated, or to increase the effectiveness of some herbal remedies, or for children.

We were able to locate Feng-mi, Chinese for honey, in the Friendship store in Peking only, a store off limits to natives, catering only to tourists. We were unable to find any at all in Xian, our next stop, nor in Hangchow. Trying to get a jar of honey in China seemed to be the impossible task. I asked the manager of the hotel dining room in

Continued on next page



Mr. Wong, Industrial Manager of a Chinese bee supply company and L. Dubay hold frames used in royal jelly collection.

The manager was justifiably proud of China's great honey production which he said is now greater than that of Mexico and Argentina. Politics and politeness constrained any of us from telling our most gracious hosts of the vast crop and superior quality of U.S. honey and of the economic problem of the U.S. beekeepers due in part at least to competition from foreign honey.

Throughout our tour we were treated wonderfully. The telling of our experiences in addition to those relating to beekeeping will entertain our friends and neighbors for a long time. □

THE END



Back row: O. Petty, Mr. Sun, K. Rowe, D. Cressler, T. Gochbauer, M. Smith, L. Bravo, M. Gochbauer, A. Daniels.
Front row: H. Daniels, L. Dubay, Mr. Wong, R. Price, S. Eisele and G. Eisele.



Huge Asian wasps that are such a menace to Chinese beekeeping.



L. Dubay (left) and O. Petty inspect a basket tray for drying pollen.

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Continued from previous page

Hangchow if they had any Feng-mi for my rice. He said that they never use honey. Tour member George Eisele commented that he regularly sells honey to a Chinese restaurant near San Diego.

In the course of our travels, we were lucky enough to also visit a bee farm near Hangchow which had two jars of honey on hand which were quickly bought. We were taken also to a little roadside stand near that bee farm which had honey for sale and beekeepers' supplies. Principally neat little plastic cups and grafting tools for queen cell production for use in royal jelly production, a really big business in China. They also had hive tools which some of our group thought had features we could copy. Others commented that they weren't of very strong metal.

After the slide show at the Academy, we were taken to their exhibit of bee products, and it was impressive. It included a variety of honeys in beautifully labeled jars. As above, we never saw any on the Chinese market we saw. There were at least 10 therapeutic formulations of royal jelly with herbs, capsules of pure royal jelly, pollen, pollen with honey, propolis, bee venom to be used by doctors, and honey wine. Royal jelly and pollen are to be found in shops everywhere. It seemed that although there isn't much of a market for honey in China, they are trying to promote royal jelly and pollen. Besides packing pollen with honey to make it more attractive, they pack it with chocolate! I bought a jar of that product, which didn't look like it had any chocolate in it to me, to find that it was apparently a mixture of sugar and white chocolate with a little pollen in it. As I pondered it, it seemed that it would be a suitable sweetener for hot cereal for those who use sweeteners.

The royal jelly is vacuumed out of the cell and stored in a refrigerator until it is either picked up by the processors or is delivered to them. This should take place within 24 hours. Prof. Huang Wen Cheng at the Academy, answering a question through a interpreter indicated that the base used to formulate the royal

jelly and, for example, ginseng, which is allegedly a remedy for over-taxation, was honey wine.

This sounded logical or at least acceptable to me. But when we visited a packing plant near Hangchow, which wasn't operating, we were told that the carrier for the royal jelly preparations was honey. This seemed unbelievable to me until I got a jar of their honey. It was watery enough to drink through the little straws that come with the royal jelly. Perhaps both methods are used. I was told that the royal jelly preparations have a shelf life of one year.

At that plant near Hangchow, which was a bee farm and had the royal jelly processing plant there was also a Chinese made machine for rolling out foundation. Mr. Wong, who was in charge of the Industrial section, and Mr. Sun who ran the bee farm, besides receiving us with the customary tea and hospitality of the Chinese told us that the farm was 30 years old. That at first it only raised bees. That the royal jelly business started in 1972 and the packing of pollen products began this year. They had 400 colonies of Italian bees and 200 of Chinese bees. But just now they were all "out". That there were 100 beekeepers, mostly individual as opposed to belonging to the central cooperative. That they can earn 1000 to 3000 yuan a year because they had to pay for truck and train transportation, living expenses away from home and so on. A thousand yuan is a lot of money in China! A medical doctor makes about 100 yuan a month.

They said that they produced 500 tons of royal jelly, 10,000 tons of pollen and 5,000 tons of honey last season.

The most interesting thing at that bee farm was the fact that Mr. Sun, after lighting a cigarette and smoking one of the few colonies of bees which they had there with it, opened it up and let us look into it and take pictures. It was the peak experience of our travels. The bees were very pretty. They were a hybrid resulting from the cross of the Italian bee and a bee from Sri Lanka. The result was a sort of

golden bee which Louis Dubay commented was hairier than the Italian. I would agree. It also was a little smaller. According to Mr. Sun, it was more resistant to disease than the European.

At various times we asked questions about bee diseases. At the Academy we were invited to send them information on such diseases. Their responses otherwise did not indicate that disease was a problem. Mr. Sun described bees crawling, missing legs or wings in such a way as to suggest paralysis. A member of our group said that it also suggested Varroa. Such conditions were cleaned with alcohol.

The most interesting thing that happened at the commune near Shanghai which we visited today was to observe the attitude of the people who told us about the beekeepers who had gone out with their bees on the train to "no one knows where"... "they never tell us"... "it seems like they have secrets"... This got many knowing smiles from the beekeepers present, who know all about those kinds of secrets!

On the way to the airport for our flight to Tokyo we stopped at the White Rabbit candy factory. They were making candy out of sugar, glucose, dried honey and powdered milk. They were also processing honey. At first I was overwhelmed by the odor of "wet honey". The manager explained that the Chinese will accept honey with a high water content, but for export, their honey is subjected to two drying processes, which we observed in progress. Honey is shipped to the U.S. in 50 gallon drums. For other countries it is bottled, which we saw in progress, but not labeled. My assessment is that the receiving country can then label it to suit themselves.

In their display case they had jars of rape, clover and locust honey (*Robinia pseudoacacia*), and "baby honey", which was also locust. They were also packing royal jelly.

Continued on next page

Research Review

By DR. ROGER A. MORSE
Department of Entomology
Comstock Hall
Cornell University
Ithaca, NY 14853



Tobacco Smoke Detection Of Varroa

The mite *Varroa jacobsoni*, is now firmly established in honeybee colonies in most of Europe. A friend in Germany wrote recently that as a result fully half of the beekeepers in Germany have gone out of business or given up the hobby. Chemical controls have been developed but these either leave too much residue in the hive or are too toxic to bees or people.

England is not yet infested with *Varroa* but beekeepers in that country are very much worried that it may be accidentally introduced. Recently two colonies of honey bees from abroad were found on ships docked in English ports; neither of these had mites.

The English Ministry of Agriculture has recently issued the leaflet listed below that outlines how beekeepers might search for *Varroa* themselves using the tobacco smoke method. It was found by Dr. A. de Ruijter of the Netherlands Ministry of Agriculture that smoking a colony of bees with ordinary pipe tobacco would cause the mites to drop off of the bees and onto the bottomboard where they could be detected.

The tobacco smoke method is described as being simple, cheap, quick and effective. Dr. David De Jong, who is working on the Cornell *Varroa* project in Brazil confirms that using tobacco smoke is a good method of determining if *Varroa* mites are present in a colony. Because the mites are stunned but not killed, smoking is done when colonies are more or less brood free as mites in capped

brood cells are not affected. The method is not good enough that it may be used as a control.

Three grams of pipe tobacco are used for an ordinary, normal size colony of bees. The bottomboard on the colony to be observed is cleaned and the floor covered with a piece of white or light-colored paper. The smoking is done at night after the bees have stopped flying.

The tobacco is put into a smoker on top of a lighted newspaper. The smoke is applied to the colony entrance which is then kept closed all night. The paper is checked in the morning for mites.

Too much tobacco smoke will kill a confined colony it is reported.

Cook, V.A. and D.A. Griffiths

Varroasis of bees: tobacco smoke detection. Ministry of Agriculture Pamphlet 936. 2 pages. (Copies are available from the Ministry by writing Fisheries and Food, Lion House, Alnwick, Northumberland, NE66, 2PF England.

The Queen & Social Control

How does a honeybee queen dominate her workers? What is the role of workers bees that lay eggs? The paper cited below reviews the research that has been undertaken in this area in the past 30 years, including the frustrations and contradictions that have occurred. The author concludes by writing, "it seems to me as if we really have only a superficial knowledge of the honeybee." While I agree that this is true I'm sure this will not inhibit him, or others, from continuing to study the area.

The review begins by stating that it was about 30 years ago that several

researchers, almost simultaneously found that queen honeybees controlled their workers through chemical secretions. The fact that several glands were involved lead to the thought that each of these substances acted independently. Three glands on the queen are thought to be especially important: the mandibular glands, the tergal glands and those on the tarsi or feet. Of these glands only the secretions from the mandibular glands have been studied carefully; several substances, called pheromones, are present. The best known of these is 9-oxo-trans-2-decenoic acid (9o2). It has been called "queen substance" though that term is also used to describe the whole complex of glandular secretions produced by the queen, a fact that has lead to some confusion by itself. Nine-o-two is the honeybee sex attractant but no one has been able to find that it plays any role in the hive, though almost everyone believes it does.

How queen pheromones act in the hive is not the least bit clear. While bees can detect a queen from a short distance, body contact (antennal contact) is required for bees to recognize their own queen. The queen patrols the area where brood is reared, a fact that suggests it is the young workers that she must control. It is interesting that workers that come into contact with their queen may respond by either fleeing or by turning toward her. "The queen is hardly touched by the outstretched antennae, which barely move." It is at this point that queens are fed; one to five feedings occur for each egg that a queen lays.

If a queen is removed from the hive the ovaries of a small number of worker bees may develop and eggs form in them (laying workers). However, laying workers may also be found when a colony is beginning to swarm, and interestingly, in some winter bees. There are great differences among races of honey bees as to what will take place and how many bees will be affected. It is probably only the younger workers whose ovaries can become activated. There are no clues as to why the ovaries of some workers develop and others do not. In some races the presence of laying workers will inhibit the ovaries of other workers from developing.

Continued on next page

Continued from previous page
RESEARCH REVIEW

Aggressiveness among laying workers has been observed. It is usually in those bees in which the ovaries are developing that the greatest amount of aggressiveness is seen; the aggression is directed toward others like themselves and those that are laying eggs. When a bee with well-developed ovaries becomes a full-fledged laying worker she becomes less aggressive. Some laying workers are killed in these attacks, some appear to have a relatively short life, while still others may live and lay eggs for 25 to 30 days.

In this review I have highlighted only a few of the facts that are known about social control and laying workers. Over 80 references are listed in this paper and those are only some of the many that have been written on the subject. Despite our considerable knowledge much remains to be discovered and the area continues to be a challenge to those who would study biology. □

Velthuis, H.H.W.

The honeybee queen and social organization of her colony. Experimental Behavioral Ecology. G. Fischer Verlag, New York, 1985.

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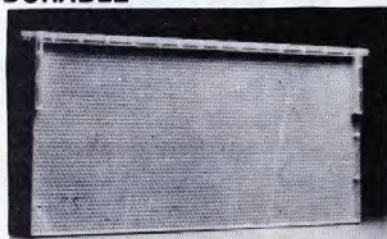
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APIMONDIA

The XXXth. International Congress Oct. 1985 in Nagoya, Japan.

by HENNING U. SPITZNAGEL 22930-48th Ave., Langley, B.C., Canada V3A 4R1

"Contribution of Honeybees To Our Society and Their Protection."

When I expected some miserable cold weather conditions in the middle of October, I certainly was mistaken: Japan presented the 1800 attendants of the thirtieth Apimondia Congress in Nagoya a sunny and warm welcome and the humidity made it quite difficult to wear the correct dress to all those official meetings and parties, which are always part of the international conventions. Eight-hundred visitors from overseas countries, one-third only from Europe, where the Apimondia was first founded 88 years ago, but today 65 are registered members and the membership is growing every year, thanks to Varroa and other threats to bees and beekeepers, some could say.

Besides the traditional opening speeches, there was a message from his Imperial Highness Prince Takamatsu and when he mentioned: "The public benefit brought about by the honeybees is recognized throughout the world", I thought again that we beekeepers in Canada still have a tremendous task to fulfill, to educate and convince our fellow Canadians, from the highschool student to the politician in Ottawa, to believe that, what Prince Takamatsu said.

Although there was a lack of translation and communication for many visitors, because only English and French translation were available, the Congress was a well organized success. The 196 papers presented and lectured during the eight three and four hours sessions showed again, that beekeeping around the world is increasingly facing difficulty, not only in development, disease control and marketing, but in many more fields.

The themes covered in this congress were divided in seven groups, the Central Executives have standing committees for:

BIOLOGY: Studies on different races of apis, breeding for resistance, morphology and physiology of apis. Studies on the different varieties of *Apis mellifera* and *Apis cerana*.

BEE PATHOLOGY: Lectures on the biology of Varroa and other diseases and the different methods of control by means of chemical or biological treatment.

BEEKEEPING TECHNOLOGY and EQUIPMENT: Studies in feeding, alteration of honey and variations of hive accessories, pollen traps and improvement of methods to gather propolis.

BEEKEEPING ECONOMY: Modernization of pollination. Comparing of marketing methods in different countries, apiculture as an employment creating factor. This subject was quite interesting. In many countries, as in Canada, beekeeping is not recognized as a profession or trade skill with the manpower or the labor board.

MELLIFEROUS FLORA and POLLINATION: Many scientific and practical studies were presented, while several lectures dealt with the increasing need for pollination in greenhouses. In Japan the greenhouse production of strawberries is widespread and totally dependent on honeybee pollination.

APICULTURE IN DEVELOPING COUNTRIES: While the author objects to the name of this committee, because in one way or another all countries need certain developments, whether in skills and technology of beekeeping or in overcoming the increasing pollution in industrialized countries, the topics

dealt mainly with studies on pollination and nectar sources in tropical and subtropical countries. The speaker from Kenya, Africa mentioned the great help his country received from Canada by providing practical education in beekeeping.

APITHERAPY: It was not only a sum up of the topics discussed at the Symposium on Apitherapy held this year in Krakow, Poland, but several new topics on this issue were brought up from speakers, who didn't attend the Symposium. The combination of acupuncture with apitherapeutic treatments was discussed and some new evidence was shown describing the latest results of clinical tests and new therapeutic methods for the treatment of certain non-specific acute and chronic diseases of the respiratory organs with apitherapeutic products.

Of course, to follow up all the many contributions of the various topics, was impossible for a single person, since the lectures were given in two different rooms, but with some management and lots of running from one place to the other, the author managed not to miss too many of the major lectures.

Besides the many lectures on topics related to bees and beekeeping the congress also provided technical visits of apiaries and production of royal jelly, pollination of orchards and strawberries and of course the ladies programs on Kimono Shows, Tea Ceremonies and Japanese Handicrafts. And of course, the most enjoyable part was, to see beekeepers from Iran and Iraq, or China and Taiwan gathered in discussion and laughter.

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In the upper floor was the Exhibition of APIEPO '85 and the many contestants and awards provided by Apimondia every second year.

The official function of this Congress was besides the Opening Ceremony on Oct. 11th, the General Assembly on the 12th, with reports and adoptions of the minutes, the budgets and working plan for 1985-1987. Admission of new members and the election of the Executive Council and the Standing Commission Chairman.

The 32 official delegates from approximately 65 member Countries elected Mr. R. Borneck, France, as the new President, since Prof. V. Harnaj as a former President was going to retire after twenty years of service to Apimondia, he was elected President of Honour of Apimondia, Mr. C. Tonsley, England, was elected vice-president and Dr. S. Cannamela was re-elected General Secretary of Apimondia.

On Oct. 16th, 1985 between 1:00-4:30 p.m. the second General Assembly and Closing Ceremony ended the six day gathering of 1800 beekeepers from around the world, with speeches, awards and medals handed out to the contestants, and the secret election of the Country, where the next, the XXXIst Apimondia Congress will be held and it will be the 90th anniversary of Apimondia.

The Delegates Choose Warszawa, Poland

I am sure, that the members of the Executive Council will have a busy time during the coming two years, to eliminate some short comings of the last Congress. In Japan only three languages were officially accepted and that is not permissible. An international society is as good as the communication available. It certainly must be guaranteed, that perfect, simultaneous translation in English, French, Spanish, German and Russian are provided and that the translators are familiar with scientific and beekeeping terms.

Also, separate rooms for gathering and discussions for each language group are necessary. The lectures

should be held in one room and the subjects must be more concentrated. Technical tours should not be allowed to places where the visitors spend seven hours in buses only to find 60 hives placed on a golf course near some big hotel.

But I feel, that not only the Executive Council, but also the Membership Countries need to do some re-organizing, to demonstrate the real meaning of APIMONDIA and strengthen the international unity of beekeepers, scientists and related trade businesses. There should be an independent national Apimondia Council, who represents the Country and also distributes the message of Apimondia to all groups in the country, who collects the membership fee and nominates the delegates, organizes the visit to the Congress and the other events and also provides the distribution of the outcoming results to the beekeepers in their country.

The honeybee, as well as the mites and diseases have no national borders, they are both international and so should join the beekeepers in unity around the world, to follow the message of the XXXth Apimondia Congress:

Contribution of Honeybees to our Society and Their Protection

I hope I will see you in 1987 in Warszawa, Poland. □

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Testing Bees For Resistance To AFB, Chalkbrood and Gentleness

by STEVE TABER of Taber Apiaries

Beekeepers like their bees for various reasons. I have several customers who want the Cordovan bee just for the beautiful bee it is. (Cordovan is a genetic recessive mutation that changes all black body parts to brown and gives the yellow Italian bee a golden appearance.) I have quite a few customers who will order one of each: Ultra yellow, Honey Production (both Italian lines), the black bee which is Carniolan, and a Cordovan (4 queens). So we have those beekeepers who have an interest in bee color diversity and then we have those who want a honey crop and some are into pollination. Some of our commercial customers (100 queens or more) say to mix them up and send whatever queens we have on hand. Then one fellow who was ordering 150 queens said to send the most gentle stock. He said he ran a family operation of over 1,000 colonies and no one liked to be stung.

The diversity of beekeepers, beekeeping operations and geography (our bees go all over North and South America, Europe and Asia) makes us have to try to select, breed and place on the market bees that will meet hundreds and thousands of differences in demands by different beekeepers. Usually when you select for something you also select against something else. The easy way to avoid that is to select at the same time from many different lines so that the genetic diversity is maintained in everything but what you are selecting. This is what we have been doing here at Taber Apiaries. A large number of different lines have been used to select for disease resistance and these same lines are also tested for temper or aggressive behavior and just this summer we have started to test for chalkbrood resistance.

I am well aware that many beekeepers prefer bees with some temper for two stated reasons: they hope mean, stinging bees will protect

their hives from vandals and the thought is expressed that mean, aggressive bees will also be more aggressive in collecting and storing honey when actually the reverse is probably true. The reasoning behind this is as follows. As the beekeeper uses more and more smoke to control the bees and as more and more sting odor (alarm pheromone) permeates the hive, the more upset the bees become and the longer it takes them to return to doing what you want them to do — make honey, pollinate, look pretty. At any rate I hate to be stung and I am not going to raise and sell bees that are mean and aggressive.

During April and early May we artificially inseminated (AI) many hundreds of queens which were ready to be tested as next year's potential breeders by June and July. Since no other queen breeders are publishing or writing about tests they perform to select their breeder stock, I thought readers of *Gleanings* may be interested in our results. To qualify as a breeder, Rinderer, at the USDA Lab in Baton Rouge, suggests using a "selection index" which means you place a numerical value on various factors of interest. Then you apply them to each queen, add up the numbers, and the queens with the highest numbers are breeders. We do not use that scheme. All our breeders have to test resistant to AFB and chalkbrood and also be gentle. Failure in any one of these areas results in a rejection as a breeder.

Color of bees is not selected in the breeder because it is selected in the drone. The Ultra Yellow line is AI with only the yellowest drone and the Carniolan line is AI with a black drone, while the selection of the drone for the Honey Production line AI shows no color preference.

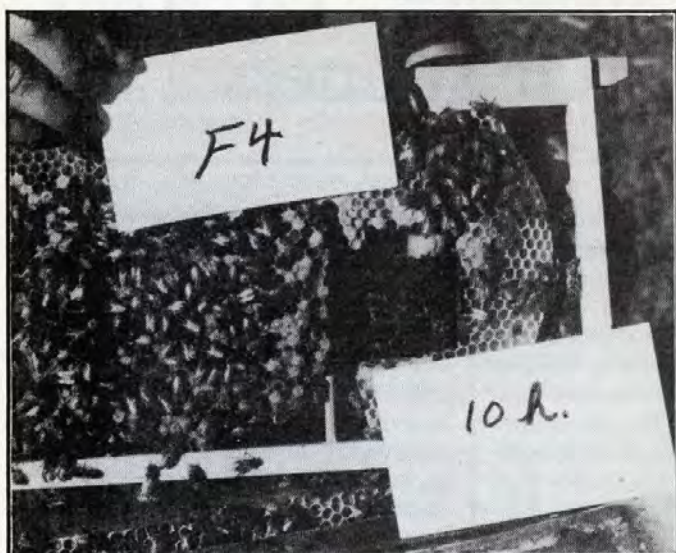
To select for resistance to AFB we use a technique developed by W. Rothenbuhler, and improved a bit by

us, of inserting into the center of the broodnest a section of frozen, sealed, and dead brood. The dead brood must not remain in the freezer for more than 24 hours until it is used in the test or it should be discarded. Samples of 2 to 2 square inches of freezer-killed brood should be uncapped and removed by housecleaning bees in 24 hours or less to be termed "disease resistant". Colonies headed by queens that have naturally mated are given 48 hours to uncapped and remove the dead brood. (Readers interested in more details, write for two of my reprints that appeared in *The American Bee Journal* several years ago. Enclose a self-addressed, stamped envelope.

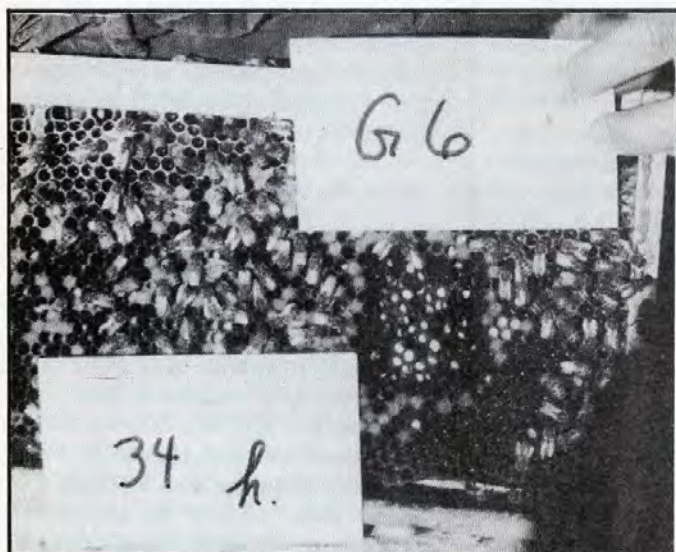
After the AFB resistance test, this year for the first time we started a test for resistance to chalkbrood. I am still not happy with this test but at least it's a beginning. Various scientific published works have indicated that chalkbrood resistance was a bit different than AFB resistance. Our test results confirm that fact. Sixty-five test units showed varying degrees of AFB resistance. Some colonies took 24 hours or less to clean up the dead brood, others took 48 hours, others took 72 hours and some took longer.

To cause chalkbrood infection of units we made a suspension of chalkbrood spores from both black and white mummies and added it to a pollen cake made of pollen, brewer's yeast and sugar water. After it was thoroughly mixed, it was placed on the top bars of all units. Units were checked for chalkbrood at 3-day intervals and showed various levels of infection on the three different inspections. The worst infection was in a unit whose chalkbrood infection in 3-day increments was as follows: 1, 8, 11, 100. That unit took three days to uncapped and remove freezer-killed

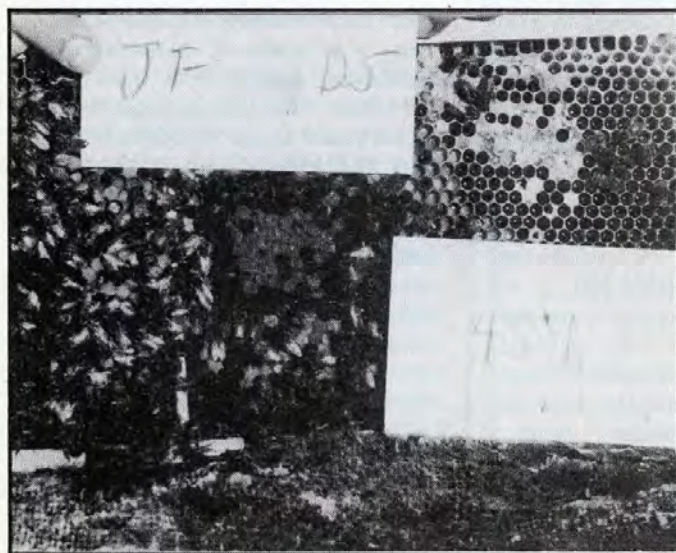
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1) Ten hours after dead brood had been inserted in this comb. Bees have uncapped and removed all dead brood. Bees are resistant to AFB.

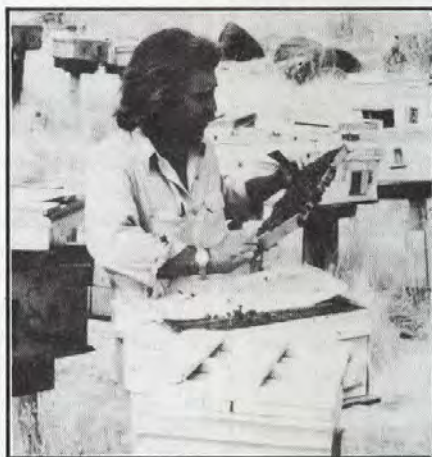


2) Bees have uncapped dead brood but not removed the dead bees 34 hours after the comb sample was inserted. Bees susceptible to AFB.



3) The most susceptible bees, they do not uncapped the dead brood nor do they remove the dead brood. Sample was in hive for 48 hours.

4) Pollen cake with chalkbrood spores mixed in placed on top bars of hive to induce infection.



5) Bob Zenisek performing part of the test for gentleness. Cover is removed, bees are watched and one comb is removed.

6) Steve Taber performing the gentleness test, I almost always wear a beeveil as it is dangerous to be stung in the face.



7) Irene Sauer performing the test for breeding gentle bees.

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brood. About half of the 65 units under test took three days or more to uncap and remove freezer-killed brood; however, this was the only unit that contracted such severe infection which we judged to be an economic loss from chalkbrood.

This was our first year to apply a true test for gentleness as described in the June 1985 issue of *ABJ*. As an ex-scientist I was concerned with what we call reliability, repeatability and usefulness of the gentleness test. Can one person come up with the same test results every time? Do different beekeepers performing the test come up with different numbers? Here are the results which I think are pretty good but you can judge for yourself. First I went through twice and rated all 65 units on a numerical scale from 1 to 10 (see June '85 *ABJ*). One is when the cover over the broodnest is lifted and the bees make no response. A number 2 is given when the bees respond to the cover removal with a slight buzz. Number 3 is given when the cover is removed and bees buzz and run about on the top bars but do not fly or attack when a frame is removed. Numbers 1, 2, and 3 do not permit use of smoke during test.

Numbers 4 through 10 require the use of smoke to control bees while operator performs the test.

As an ex-scientist I wanted the temper tests to be pretty scientific so we had each of the 3 persons who did the test do them at the same time of day, 24 hours apart. All three of us tested for temper on 38 units. Here are the results: In 13 cases, 3 testers agreed. In 13 more units we disagreed by only one point. As an example:

Bob-1, Irene-2, myself-2 and myself again-2 (remember I did the tests twice).

That left 12 units where we had extensive disagreements as to temper and some of these numbers are rather interesting so I am including them in this article. Each of us made temper observations on the 12 units again, which means that temper measurements were made on 12 units 7 times by 3 people independently. What all this data tells us is that if you make a careful test to select for gentleness you will be wrong 66% of the time and the more the test is repeated the less chance of an error resulting. Remember, the actual number is unimportant; it is the relationship of numbers with all test units that

counts. Units that tested a "1" now during ideal conditions in July might test a "3" or "5" during March in the rain. Remember it's a comparison test between units and the tests have to be made on units all in the same environment.

Why is gentleness important to bees? Two reasons—I (you) don't like to get stung when working with our bees and second, the more bees that release the sting alarm pheromone and/or become agitated with the use of the beekeeper's smoker (shall we say excessive use of smoke) the longer it takes them to recover and to resume normal bee work. In fact on some work I did in 1960 I found that it took bees three days to recover and collect as much nectar as non-disturbed bees.

Of the 12 test units we disagreed on the most, it is interesting to see how different people make different judgements. Of the 12 tested twice by Bob, he averaged 1.5 rating while Irene averaged 2.5. I rated the 12 units three times and came between them with a score of 1.9 indicating that different beekeepers will judge the temper of hives differently. □

Table 1. Comparison rankings of 3 people making judgement decisions of aggressive bees. The test units listed are the ones who Bob, Irene and I had the greatest disagreement.

Unit Q#	Bob 1	Bob 2	Irene 1	Irene 2	Steve 1	Steve 2	Steve 3	Average
1A0	1	1	1	1	3	2	1	1.4
1C0	1	2	5	2	3	4	2	2.7
1D2	1	1	2	2	2	3	1	1.7
1D5	1	3	2	3	4	1	1	2.1
1D8	2	1	4	2	1	2	1	1.9
1E1	3	2	5	4	1	3	2	2.9
1G7	2	1	1	3	3	1	1	1.7
2B2	2	2	2	2	4	1	1	2.0
2B4	2	1	3	3	2	1	2	2.0
2B8	2	1	3	3	1	2	1	1.9
2D6	1	1	1	1	3	1	2	1.4

Southington, Connecticut Honey Bess and Beekeeping Course

An adult education program on HONEY BEES AND BEEKEEPING will be offered at the Carl M. Small Regional Vo-Ag Center in Southington, Connecticut from February 5 to March 12, 1986. The course will be offered on Wednesday evenings from 7 to 9:15 p.m. The program is co-sponsored by the Regional Vo-Ag Center and Beekeeping Education Service of Cheshire.

Instructing the course will be Larry Connor, Ph.D. Consulting Apiculturist, who has extensive experience in beekeeping and bee science.

The course will be designed for existing beekeepers with limited training in beekeeping. However, the course will also be suitable for non-beekeepers, individuals interested in bees as a creature in the wild, educators and others.

The registration fee is \$60 per person, or \$90 per couple. A special student rate of \$30 is available to interested youth. The course fee includes an 8-lesson home study program prepared by Dr. Connor, a textbook on bees titled *The Beekeepers Handbook*, and other handouts.

For further information or to register for the course, contact:

BEEKEEPING EDUCATION SERVICE

P.O. Box 817
Cheshire, CT 06410.
Phone 203-271-0155.

PRE-REGISTRATION IS REQUIRED.

Dates: Wednesdays, February 5, 12, 19, 26, March 5 and 12, 1986.
Theme: HONEY BEES AND BEEKEEPING
Time: 7 to 9:15 p.m.
Instructor: Larry Connor, Ph.D., Consulting Apiculturist
Textbook: *The Beekeeper's Handbook* by Sammataaro and Avitabile.

Registration Fee:

\$60 per person \$90 per couple
Text and handout materials included

Student Registration: \$30

Registration: Beekeeping Education Service

P.O. Box 817
Cheshire, CT 06410
Phone 271-0155

AGENDA:

- Feb. 5** — The Activities of the Honey Bee
- Feb. 12** — Starting a Colony of Honey Bees
- Feb. 19** — Pollination by Honey Bees
- Feb. 26** — Managing Bees for Honey Production
- Mar. 5** — Pest and Disease Management
- Mar. 12** — Fall and Winter Management

Baton Rouge, Louisiana Technology Transfer Workshop

In conjunction with the Apiary Inspectors of America annual meeting, the USDA, ARS, Honeybee Breeding, Genetics and Physiology Research Laboratories will be holding a Technology Transfer Workshop on the Fast Africanized Bee Identification System (FABIS).

If enough people are interested a second workshop will be held at the Capital House in Baton Rouge, Louisiana (504-383-7721).

If you are interested in attending, please notify Lorraine Davis as soon as possible at the USDA, ARS Honeybee Breeding, Genetics and Physiology Research Laboratories, 1157 Ben Hur Rd., Baton Rouge, LA 70820 or call (504) 766-6064. Complete details will be in the January issue of this magazine.

VIDEO TAPE SERIES RELEASED

Beekeepers frequently complain that they have considerable difficulty learning basic beekeeping skills since they are unable to visit beekeepers to observe common colony manipulations. In addition, certain events, like bee diseases and swarming, are not always witnessed by the average beekeeper so their "management" is hard to learn.

These difficulties are at least partially solved with the use of video-tape filming in field conditions. The development of light-weight equipment with battery-operated cameras allow extensive field use of video systems at a cost equivalent to the development of slide programs.

Beekeeping Education Service of Cheshire, Connecticut is releasing a series of video tapes titled *The Weekend Beekeeper*, for beekeeper, bee association and cable T.V. use. The programs were produced by Dominic Gaeta, Candlewood Valley Apiaries, Brookfield, Connecticut.

The programs show common colony conditions as they develop in the spring and summer. Taped on location in apiaries in Connecticut and Pennsylvania, these tapes emphasize basic manipulations, and can be applied to a wide range of conditions.

The programs feature Dr. Larry Connor, Consulting Apiculturist, who also wrote and directed the series. In the programs, he visits apiaries and makes colony inspections. The colony inspections are filmed as is, with no prior preparation, inspection, or manipulations. The programs then focus in the management of the colonies, and follow-up visits concentrate on changes the colonies have made.

The field footage was edited onto 3/4 inch video equipment in a commercial editing studio to create the master tapes for VHS or BETA video tape duplication. Eight separate programs were developed, with the length set at 28.5 minutes to conform to industry standards. Tapes are marketed with two programs each, giving the customer two programs for the price of one.

Testing Your Beekeeping Knowledge

by CLARENCE H. COLLISON Extension Entomologist The Pennsylvania State University University Park, PA 16802

The life span of worker honey bees during the summer is about six weeks. During the last two to three weeks of their life, they become field bees; foraging for nectar, pollen, water and propolis. Many factors regulate the foraging activities of the colony. The type and quantity of forage collected is related to the colony needs and environmental conditions. Foraging is the most dangerous of a worker bees' duties during her lifetime. While she remains within the colony, she is protected against the weather and against the predators she is exposed to when working alone in the field.

How well do you understand foraging behavior and the factors that affect it? Take a few minutes and answer the following questions to find out how well you understand this important topic. The first five questions are true and false. Place a T in front of the statement if entirely true and an F if any part of the statement is incorrect. (Each question is worth 1 point).

1. _____ Honey bees are capable of seeing five different qualities of color: ultraviolet, blue, blue-green, yellow and red.
2. _____ Foragers are able to distinguish between sweet, salty, sour and bitter tastes.
3. _____ Honey bees are known to exhibit preferences for certain types of pollen.
4. _____ Colony flight patterns change as floral sources change.
5. _____ The position of the sun is used as a compass by foragers.

Multiple Choice Questions (1 point each)

6. _____ The wag-tail dance is used to indicate the location of food sources at distances greater than _____ meters from the hive.
A) 100 B) 25 C) 150 D) 200 E) 50
7. _____ The minimum temperature for active foraging is approximately:
A) 45°F B) 40°F C) 50°F D) 55°F E) 60°F
8. _____ What are the two basic changes that occur in nectar as it is ripened into honey? (2 points)

9. _____ Various floral characteristics are used by foraging honey bees in distinguishing between flower species. Please rank the following characteristics in order of importance with 1 being most important and 3 least important in discriminating between flowers (3 points).
_____ Shape or floral pattern
_____ Odor or fragrance
_____ Color markings
10. _____ Please answer the following questions in reference to the adjacent illustrated communicative dance, as it is being performed on a vertical comb within a honey bee colony.
A. What is the name of the dance being performed? (1 point)
B. In what direction would the forager fly when she leaves the hive? (1 point)
C. Since it is dark within the hive, give 3 possible ways that information contained within the dance is transmitted to potential foragers. (3 points)
D. If you observed two dancers performing the dance, dancer '1' making 25 vibrations per straight run and dancer '2', 40 vibrations per run, what would you conclude from your observation? (1 point)
11. _____ Foragers are able to distinguish between various sugar concentrations of nectar and sugar syrup. In relation to this ability, explain what is meant by "threshold of acceptance" and "threshold of perception". (2 points)

Answers on page 663

The Washington Scene

By GLENN GIBSON
Minco, Oklahoma



Minco, Oklahoma — Oct. 21. I am hoping the Farm Bill will soon be a part of history. Its passage will end one of the industry's longest lobbying campaigns. At this point I am cautiously optimistic about a favorable outcome.

Whatever cards fate will deal we must look ahead, study our options and get with it. Hopefully next year we will have an opportunity to take the initiative on projects that have been neglected or overlooked. Over the years most of our energy has been spent on temporary solutions—sometimes called "band aiding", or "hacking at the branches instead of the root".

A good example of "band aiding" was the Beekeepers Indemnity Program, which was Congressman Silvio Conte's favorite bone of contention for more than 10 years. Conte yakked about paying for dead bees, but failed to note that the Government was paying for sick cows. We knew the legislation was temporary from the beginning since the authorization used the word "may" instead of "shall". Without question the legislation was a "shot in the arm" for the industry, but it failed to solve the root-problem of pesticide bee kills. Some members of Congress view the honey loan as a temporary measure that should be terminated. Before imports became a problem this legislation solved a basic problem — price stabilization. Without it there would be complete chaos in the marketplace. So — I am hopeful that supports will be permanent, government costs should be pared to the bone.

Honey promotion, stronger organizations, and public relations are

root problems that sorely need attention. As most realize these are addressed in most resolutions at our national conventions, but so far no earth-shattering results. So — these are long range problems that sorely need attention.

Honey Promotion

Since honey promotion will receive some serious attention in the next few weeks when producers vote on the referendum for a mandatory check-off, I will not discuss this point because our organization has taken no position on the project. I don't want to influence votes either way.

Stronger Organizations

No other subject receives more attention at bee meetings than membership. Association Newsletters and bee journals continuously plug this point throughout the year, but somehow few receive the message and fewer still respond. This, of course, has nothing to do with the need of strong organizations at the national level. Some are turned off because we encourage participation in promoting our program in Washington. These fail to note or understand there is simply no way to do business nowadays without being influenced by politics at both the state and national level. We will stoutly contend that we need assistance from the government as long as cheap imports continue to flow. Also, we merit a little attention since the government authorizes the use of pesticide that kill our bees.

The state associations can assist our lobbying program. However, some of them have failed to alert their congressional delegations about our problem with imports. Feed back from bee-

keepers explain the reasons for this failure to communicate. Some of them are:

- * I wrote a letter, but received an evasive reply. I don't feel that did any good.

- * I don't like to write letters. My mistakes in grammar are embarrassing, besides I don't know what to say.

- * I have been too busy, etc.

Being busy is a good excuse, but not throughout the year. All letters do some good. Several letters over a period of time will net more than a form letter, especially so, if the congressman receives a number of letters from association officers and members. If the last line of your letter advises the congressman that you will contact him from time to time and state that you will try to answer any questions he might have, my guess is that after the fifth letter you will receive a coherent response. Especially so, if we call by his office and offer to assist.

Forget the concern about mistakes. As long as the message is clear, your letter will receive full attention.

Public Relations

Our weakest point!!! Sadly neglected! If it weren't for the hobbyist and sideline beekeepers, our public image would be mostly negative. While selling honey and doing association work, they do a nice job promoting beekeeping. The activities of the Federation Honey Queen, and booths at the state fairs do their part, but more needs to be done. Some members of Congress, the Media Elite, and some bureaucrats have done a nice job telling the public that we are subsidy hogs. At the moment we are not exactly helpless. A great part of our program next year will give serious attention to image building. We will do this (subject to time and funding):

- * Promote special congressional hearings;
- * Promote favorable insertions in the Congressional Record;
- * Send material to the Media Elite;
- * Discourage any appearance on national TV programs;
- * Encourage in-state newspaper and TV publicity; and
- * Conduct lobbying workshops and encourage congressional letter writing.

These and other critical issues will be discussed at our upcoming El Paso Convention. Join us and be a part of the action. □

The Monthly Honey Report



Nov. 10, 1985

The following figures represent the current prices reported by beekeepers and packers over the country. They are based on reports from many states averaged out for each region. Where insufficient information is received no price is shown. The retail prices represent the price of each size jar.

Wholesale Extracted

Reporting Regions

Sales of extracted, unprocessed honey to Packers, F.O.B. Producer. Containers Exchanged

	1	2	3	4	5	6	7	8	9
60 lbs. (per can) White	40.00	37.00	52.00	34.80	48.00	40.00	38.00	35.50	42.50
60 lbs. (per can) Amber	39.00	32.33	42.00	30.00	36.00	35.00	30.30	33.75	37.80
55 gal. drum (per lb.) White	.52	.55	.41	.58	.64	.55	.55	.56	.58
55 gal. drum (per lb.) Amber		.52	.38	.50	.54	.52	.50	.53	.54
Case lots — Wholesale									
1 lb. jar (case of 24)	28.50	25.65	23.75	20.64	29.40	24.00	25.00	25.00	25.20
2 lb. jar (case of 12)	27.50	23.05	22.75	20.40	28.00	24.00	21.50	24.60	
5 lb. jar (case of 6)	30.00	28.90	23.75	31.80	28.50	24.00	21.50	25.62	24.60
Retail Honey Prices									
1/2 lb.	.90	.90	.65	.90	.90	.90	.85	.95	.89
12 oz. Squeeze Bottle	1.50	1.24	1.25	1.25	1.46	1.35	1.35	1.28	1.19
1 lb.	1.50	1.52	1.35	1.37	1.51	1.55	1.52	1.62	1.40
2 lb.	2.70	2.74	2.65	2.47	2.71	2.60	3.00	2.87	
2 1/2 lb.	3.35			2.85	3.95	3.25	3.50	3.34	
3 lb.	4.00	4.83	3.15	3.47	4.14	3.85	4.00	3.86	3.40
4 lb.	5.00	5.45		4.15	4.98	4.90	5.00	4.98	
5 lb.	6.00	6.50	5.25	5.39	5.75	5.80	5.90	5.97	5.25
1 lb. Creamed		1.75	1.45	1.29		1.39	1.50	1.79	1.40
1 lb. Comb	2.25	2.25	2.25		1.95	1.85	2.00	1.80	
Round Plastic Comb	1.75	2.00	1.75	1.65	2.00			1.65	1.75
Beeswax (Light)	1.40	1.35	1.15	1.25	1.21	1.25	1.17	1.15	1.50
Beeswax (Dark)	1.25	1.15	1.05	1.25	1.13	1.10	1.10	1.10	1.25
Pollination Fee (Ave. Per Colony)	27.50	20.00	27.50	15.00	30.00	21.00	27.00	18.00	25.00

REGION 1

Too much rain, too late for fall flow but just in time to make the honey crop hard to remove. It seems we get rain three out of five days. A lot of damage done by the storm "Gloria". Trees down in many yards. Good crop in most areas but a few just five miles away got nothing. Some yards had 150 lbs. average with a few going to 200 lbs. surplus.

REGION 2

Plenty of different honeys for sale, prices up somewhat. Cool nights, warm sunny days. Bees in fine shape for coming winter. Honey production close to double that of last year. Most beekeepers yield over 100 lbs. per colony. Quality is poor due to honeydew.

REGION 3

Extracting nearly completion. Some areas had good crop, others

not so good. Fall flow wasn't good at all anyplace. I've spent the last couple weeks talking to Senator's and Representatives. I've gotten good cooperation from all but our Jr. Senator. He's made up his mind to believe the G.A.O. report and refuses to change his opinion. We along with our farmer friends that are taking all these government hand outs are going to have to find another way to make a living. It seems "we are taking advantage of and costing the taxpayer too much." I agree that government is costing us all too much but I rather doubt that we are abusing the program as they say we are.

I do not agree with a program that guarantees us a profit at taxpayers cost but neither do I agree with free trade policies that are free to all but us.

Bees entering winter with good clusters and ample food. Good weather made excellent aster and goldenrod flows. Many * small

beekeepers are not placing this honey under price support as they did last year. They indicated they were selling below price support level instead of fooling with all the "red tape" of price support regulations. Colonies that were mite infested have been depopulated.

REGION 4

Good honey short in supply and still not bringing premium prices. Better than average crop this year, with most beekeepers finished extracting by early September. Most colonies are in good shape for winter. We had a fair fall honey crop, was short on moisture in September. The honey is a good golden color. Retail sales are very slow.

Continued on page 662

In October the first two tapes were released for distribution. Tape 1 is titled *Early Spring Management* and consists of program 1, "A Look at Overwintered Colonies" and program 2, "Colonies with Problems". Program 1 deals with several overwintered colonies of varying strengths. Dr. Connor inspects the colonies, breaking the colony apart to the bottom board. Each colony is then inspected and then reassembled according to the colony's needs for food, swarm control, spreading the brood area, and disease prevention.

Program 2 is titled *Spring Management I* and contains Programs 3 and 4. In Program 3, "Making Increase Colonies in an Outyard", Dr. Connor visits a hobbyist-sized outyard for equalization for strength and food, and for the purpose of removing excess bee population for increase colonies (nuclei), which are moved to another location.

Program 4 is titled "Queen Management". Various queen-related problems are explored, including queenlessness, requeening, checking for introduction success of a colony after a queen was introduced, and establishing a queen bank for temporary queen storage.

Beekeeping Education Service will release the remaining two tapes in December. Tape 3 consists of programs 5 and 6, and is called *Spring Management II*. In program 5, titled "Managing Colonies with a Double Screen" an exceptionally strong colony is managed for production of an increase colony, and for extra honey production, by using a double screen. The colony over the double screen is allowed to produce its own queen, and is transferred to a separate hive location.

Program 6 is titled "Swarm Management", and shows naturally occurring swarms with their capture and management by the beekeeper. Conditions in strong overwintered colonies favoring swarming are examined, and queen cells are closely observed.

Tape 4 titled *Honey Management* consists of Programs 7 and 8. These two programs feature guests who provide a bulk of the instructional information.

In Program 7 "Shook-Swarm Comb Honey Production", popular author/lecturer Dr. Richard Taylor demonstrates the Shook-Swarm system for comb honey production. A step-by-step demonstration of the system is shown, with the discussion between Drs. Taylor and Connor recorded on camera.

Program 8 in the series is titled "The Honey House" features Pennsylvania beekeeper Jerry Ely (who recently became a Master Beekeeper with the Eastern Apicultural Society), who operates a 115 colony operation in Montrose, Pennsylvania. The program follows a crop of honey from the outyard to the honey house, into the extractor, the holding tanks and into the bottles. A unique three-level honey house is shown, with hot water heat for extracting, wax melting, honey warming, etc.

Each *Weekend Beekeeper* tape (containing two programs

each) is priced at \$59.95, plus \$2.40 for first class postage. If two or more tapes are purchased at the same time, the price is \$53.95 plus \$2.40 P&P per tape.

Orders may be placed with Beekeeping Education Service, P.O. Box 817, Cheshire, Connecticut 06410. Phone 203-271-0155 for additional information. Orders must be prepaid, and no credit cards can be accepted.

Honey Loan Program

The Sept. 30, 1985 report from the Agricultural Stabilization and Conservation Service has 2,214 loans outstanding for the '85 crop with 37 million pounds on loan and 62,897 pounds in which loans were repaid. Iowa heads the list with 4,600,000 lbs. on loan followed closely by California, Florida and South Dakota.

The '84 crop has 107 million lbs. under loan, 1,643,000 lbs. repaid, 90,516,000 lbs. liquidated and 15,329,000 outstanding. Iowa also heads this list with 16 million pounds under loan.

The '83 crop has 113,629,000 lbs. under loan, 7 million lbs. repaid, 106,440,000 lbs. liquidated and 131,000 lbs. outstanding. North Dakota was tops that year with 17,482,000 pounds.

VIRGINIA



Left to Right: Holger Christensen, Paul Camp, Gov. Charles Robb, Elizabeth Grainger (Honey Queen) in foreground.

The 1985 Virginia State Fair was held in Richmond, Virginia from Sept. 19-29, 1985. The Beekeepers of Virginia Honey Booth is sponsored by Richmond Beekeepers Association. The booth grossed \$5200 and sold some 2100 pounds of honey. Three Virginia Beekeepers Associations participated. We were successful in educating the public about different types of honey and other hive products.

Continued on next page

Continued from previous page / NEWS & EVENTS

The 1985 Richmond Beekeepers Honey Queen, Miss Elizabeth Grainger was crowned by Virginia's Governor, Charles S. Robb. Charles S. Robb also presented the Governor's Award to Holger R. Christensen of Highland Springs. Holger is a past president of Richmond Beekeepers Association. The Governors Award is given to a member who has contributed his time and talents to the Association this past year.

The honey show, which was headed by Paul Camp had many entries and approximately \$700 in prize money was awarded. This competition is open to any person east of the Mississippi River.

American Beekeeping Federation News Federation Meets in Phoenix, Jan. 18-25

The American Beekeeping Federation will hold its 42nd annual convention, Jan. 18-25, in Phoenix. The convention sessions will be held in the Hyatt Phoenix Hotel in the downtown district.

In addition to the usual coincidental events, such as the meetings of the ABF Ladies Auxiliary, the Honey Industry Council, the National Honey Packers and Dealers Association, and the American Honey Show, the Phoenix convention will feature a day-long symposium on tracheal mites, varroa mites, and African bees. The symposium is being conducted in conjunction with the Tri-County Committee — the North American Committee on Parasitic Mites and the African Bee.

Convention and hotel registration packets are being mailed to Federation members. Others may contact the Federation Office (American Beekeeping Federation, 13637 NW 39th Ave., Gainesville, FL 32606) for packet.

TENTATIVE SCHEDULE

SATURDAY, JAN. 18, 1986

Executive Committee	AM
Board of Directors	PM
Registration	PM
Exhibit Set Up	All Day

SUNDAY, JAN. 19, 1986

Registration	All Day
Exhibits	All Day
Tri-County Committee	PM
General Session	PM
Opening Ceremony	1:30 P.M.
Color Guard	
Presidential Call to Order	
Invocation	
Local Welcome	
Presidential Response	
President's Message	2:00 P.M.
Keynote Speech	2:30 P.M.
Break	3:00 P.M.
Remarks by Chairman, Tri-County Committee	3:30 P.M.
Presentation of American Honey Queen, Princess & Contestants	3:45 P.M.
Honey Industry Council Committee	4:30-6:00 P.M.
Honey Queen Reception	PM

MONDAY, JAN. 20, 1986

Honey Council Breakfast	AM
Registration	All Day
Exhibits	All Day
General Session	8:30 A.M.
Joint Symposium — ABF and Tri-County Committee	
Papers on Africanized Bees, Tracheal and Varroa Mites	
Honey Packers-Directors	PM
Desert Cookout at Rawhide	PM

TUESDAY, JAN. 21, 1986

Tri-County Committee	AM
Excursions	All Day
Exhibits	All Day
American Association of Prof. Apiculturists	All Day

WEDNESDAY, JAN. 22, 1986

Membership Breakfast	AM
Ladies Auxiliary Brunch	AM
Registration	All Day
Honey Packers Meeting (Open)	PM
Exhibits	All Day
General Session	All Day
A Researcher Looks at the Botulism Problem (C. Huhtanen)	8:30 A.M.
FDA Interest in Honey & Pollen (Tentative)	9:00 A.M.
Pollen — A New Marketable Commodity (C. Robson)	9:30 A.M.
Break	10:00 A.M.
Panel: Politics of Research (B. Weaver, ARS Rep., Question & Answer)	10:20 A.M.
Reading of Resolutions	11:15 A.M.
Lunch Break	12:00
Report of Tri-County Committee (D. Wenner)	1:30 P.M.
State Regulation Agencies Look at the Future (J.B. Grant)	1:50 P.M.
Bee Breeders Look at the Future (Pending)	2:15 P.M.
ARS Research — Pathway to the Future (J.E. Wright)	2:35 P.M.
Break	3:00 P.M.
Panel: Extension Service — From Research to Application (Mussen, Sanford, Furgala, Q&A)	3:20 P.M.
International Development of Beekeeping (J. Tew)	4:30 P.M.
Beekeeping Activities in the Peace Corp. (H. Thoenes)	4:45 P.M.
Honey Queen Coronation	8:00-10:00 P.M.

THURSDAY, JAN. 23, 1986

Mid-U.S. Breakfast	AM
Packers Directors Breakfast	AM
Registration	Through Noon
Exhibit	Through Noon
General Session	All Day
Am. Association of Prof. Apiculturists Report	8:30 A.M.
Panel: Industry Sponsored Research (Kiser, Honey Industry: Others Pending, Q&A)	9:00 A.M.
Break	10:00 A.M.
Arizona Beekeeping, Past, Present Future. (B. Hancock)	10:30 A.M.
Honey Support Price Program. Update (H. Sullivan)	11:00 A.M.
Promotion Legislation Update (B. Weaver)	11:30 A.M.
Lunch Break	12:00
Closing Business & Resolutions	1:30 P.M.
Banquet & Ball	7:00 P.M.

FRIDAY, JAN. 24, 1986

Honey Council Breakfast	AM
Board of Directors	AM
Executive Committee	PM

SATURDAY, JAN. 25, 1986

Executive Committee	All Day
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3 lb. Pkg.	28.90	27.80	26.70	25.05	3.20
4 lb. Pkg.	35.80	34.45	33.05	31.00	3.30

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Honey Report Comments Continued from page 659

The month of September was the driest month on record in our area of N. Carolina. We did not have a drop of rain for 38 days until a sudden thunderstorm came and dropped two inches of rain in 30 minutes. The fall aster just about dried up from lack of moisture and a lot of feeding is being done. Bees are in weak condition and things look bad. All beekeepers are hoping for a good mild winter. This has been the worst year in a long string of bad ones. Many people trying to sell out, hives going for as low as \$25.00 and that is with two supers of honey. Some beekeepers did not extract any honey all year.

REGION 6 NO REPORT

REGION 7

Colonies are on a nice fall pollen and honey flow. Moisture conditions are very good for early growth of spring wildflowers. Colonies should winter very well with the amount of stores they now have and the bee populations they have. Weather is mild. Honey sales are picking up some. Supply sales are poor. No commercial interest at all in supplies. Many hobbyists are selling out due to \$100.00 per year annual fee they must pay the Texas Dept. of Health to process or sell honey.

REGION 8

Montana had welcome late summer rains which caused lazy white and yellow sweet clover to bloom and produce nectar. Some fortunate beekeepers were able to obtain a surplus of excellent water-white clover honey from this unusual late summer flow. It will make a good winter hive pantry supply. Total state production is way down. Crop totals were below last year by 20 to 30%. Bees have adequate stores for winter.

REGION 9

Weather a little cooler in Washington. Several light snows already. Winter may be early again this year. Most colonies ready for winter. Some feeding needs to be done. Honey sales remain fairly good.

Beekeepers in Africanized Quarantine Area of Kern County (Lost Hills) are being allowed to remove honey under supervision.

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Answers To Testing Your Beekeeping Knowledge

1. **False.** The honeybee is capable of seeing four different qualities of color: yellow, blue-green, blue and ultraviolet. The visible spectrum for bees is shortened in the red and extended into the ultraviolet, which man cannot see.
2. **True.** Honey bees are similar to man in that they can distinguish four qualities of taste: sweet, bitter, salty, and sour.
3. **True.** Some pollens are more attractive than others to honey bees even when separated from the flower structures, color patterns and odors normally associated with the flower. Several chemical constituents have been isolated from pollen that are believed to be responsible for these pollen preferences.
4. **True.** Colonies in the same location may differ greatly in the flower species they are working. When a honey bee begins to forage, it is nearly always recruited to a floral source with abundant nectar and pollen by a successful forager and seldom search for forage on their own. Differences in the forage discovered by individual bees partly explains the differences in the foraging behavior of individual colonies. Although bees remain faithful to a species, they will search for alternative sources of forage, if the one they are working becomes depleted or less attractive. This behavior allows the colony to exploit the most favorable food sources available at any one time.
5. **True.** The honey bee uses the position of the sun as a compass in both flight and while performing a communicative dance indicating directions to a new food source or home site. The bees do not, however, need to see the sun itself, but use the polarization pattern in the sky, which is directly related to the position of the sun.
6. **A.** 100 meters
7. **D.** 55°F.
8. **A.** Sucrose, the predominant sugar found in nectar, is inverted into glucose (dextrose) and fructose (levulose) due to the action of the enzyme invertase.
B. Moisture levels are reduced down to 17-18% water.
9. **3** — Shape or floral pattern
1 — Odor or fragrance
2 — Color markings
10. **A.** Tail-wagging, wag-tail, wagging or waggle dance.
B. The forager would fly directly toward the sun.

- C. 1. Vibrations transmitted through the comb.
2. Recruits touch the dancer with their antennae and attempt to follow her.
3. From odors adhering to her body.
4. The dancer from time to time stops and distributes drops of nectar to potential recruits.
- D. Dancer '2' (40 vibrations/run) was describing a food source located a greater distance from the hive than dancer '1' (25 vibrations/run). There is a direct relationship between the amount of energy expended during the dance and distance to the food source.

11. Threshold of perception — the lowest sugar concentration which will stimulate the sense of taste. This does not change with good and poor foraging conditions.

Threshold of acceptance — the lowest sugar concentration which bees will find acceptable and proceed to collect it. This threshold varies with forage conditions. If there are many plants in bloom, foragers have a high threshold of acceptance, possibly 40%. During the spring and fall in temperate regions when floral sources are scarce, foragers may have a threshold as low as 5%.

There were a possible 20 points in the test today. Check the table below to determine how well you did. If you scored less than 12 points, do not be discouraged. Keep reading and studying — you will do better in the future.

Number of Correct Points

20-18 Excellent

17-15 Good

14-12 Fair



The Solitary Beekeeper

It doesn't take great insight to determine winter is here again. Having spent my youth in a very warm climate, winter's arrival always surprises me. I always approach the cold season with the best of intentions. I plan to feed Fumadil-13, install entrance reducers, check and position honey stores, and make all my other winter preparations. As usual I've done very little. I take no pride in that.

It's a great fact of bee life that some colonies will come through in spite of mismanagement. I appreciate (and misuse) those colonies. Next spring, since I will parasitize their stores and bee populations to supplement those that were not as frugal, those that are efficient and winter well will be measuredly punished. I guess that's fair, though I'm not sure why.

I had a medical examination a few weeks ago. I discussed preventative medicine and preventative procedures with my physician. I'm still confused. My personal health is probably my greatest responsibility. Yet I grope along, trying to stay informed and seemingly doing a poor job. The broad outline of good health appears to be: watch your weight, eat properly, exercise regularly, and see a physician as suggested.

As I returned to my office after the physical, I thought how much the episode reminded me of wintering bee colonies. A beekeeper may read books, talk to professional apiculturists, and just generally try to do all the right things. It's difficult to always know what the right thing is just as it is with one's personal health. Once again, a broad outline emerges that can be used as a guide.

Keeping the colony strong. Don't make late splits. Watch those that swarm. Be sure the remaining colony requeens itself properly. If something goes wrong, the beekeeper should obviously intervene and correct it. Of the colonies that are begun as spring swarms, monitor their development. Requeen them as necessary. Feed for adult population build-up as well as winter stores. Naturally, monitor all colonies for diseases.

Protect the hive from prevailing winds. I think one of the main reasons for this suggestion is to give bees a chance to take cleansing flights on those marginal days when conditions are briefly acceptable for bees to leave the hive. Quite a few won't return. With our current level of technical understanding, it is thought that some bees not returning is good. Those bees were old or sick. I hope that in the near future we can help those bees that are "old and sick".

Keep the colony off the ground. A few inches is acceptable. Some beekeepers have used cement blocks, old tires, hive stands, bricks, rocks, tree stumps—anything—but, get the hive off the ground.

Provide adequate stores. Adequate stores should be positioned above the developing cluster as well as possible. These adjustments can be made any time as long as the cluster is not disrupted. Feeding throughout the cold months is possible, but difficult at best. Contact a local beekeeping authority if this should become necessary.

Provide Proper Ventilation. Wintering colonies are put under extra stress if moisture condenses inside the hive and then "rains" back on the bees as the outside temperature rises. I think an acceptable rule would be to attempt to keep a small patch of frost some place inside the hive; probably on the inner cover. If there is too much frost (much more than the size of your hand), it can be assumed that the hive is not ventilated enough.

On the other extreme, if on a cold day there is absolutely no frost, the beekeeper may wonder if too much air is being circulated, thereby needlessly subjecting the bees to drafty wintering conditions. This manipulation is one for which the beekeeper must develop a feel. What works one winter will not necessarily work the next.

Many other procedures may be of value some years, but I'll not put them in my list of major points. For instance, some beekeepers still pack their colonies with insulatory material to help colonies overwinter. Others would never consider such a procedure. The discussion on the packing topic could go on for years.

Do the best job you can. Monitor the progression of the hive and try to make the necessary changes. I'm afraid there's not much more that can be done. □



By DR. JAMES TEW.

The Agricultural
Technical Institute
Wooster, Ohio 44691

Some Problems of Beekeeping In Florida

by ARNOLD KROCHMAL

On a recent trip to Florida we spent quite a bit of time visiting the farm areas, particularly orange groves, because of the relationship to the honey industry. Orange blossom honey is the major honey produced, and it is now facing real problems.

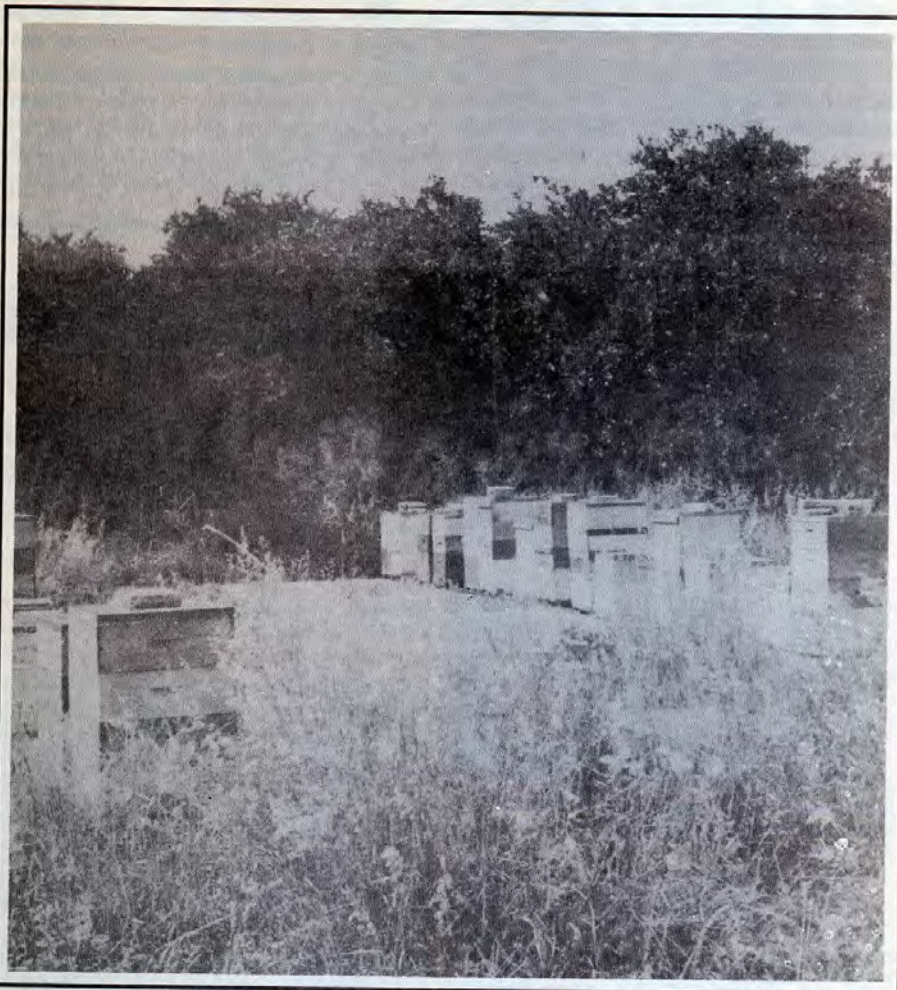
A bacterial invasion of citrus groves, citrus canker, has resulted in the destruction by burning of over 10,000,000 trees since the first detection of the disease in August 1984. Spread of the disease is continuing. When we were there, for example, a nursery was found to be cankerous. The nursery owner had sold 300,000 trees which were ready for shipment when the state inspectors stopped the movement. In addition, 20,000 more trees sold during the past several months by this nursery will be tracked down by the state and burned. A nursery which has been found to harbor disease, and is burned, cannot replant for two years.

To replant, and await a new crop of citrus, takes about seven to eight years.

Oddly enough to add to this problem, four hard frosts in the past five years, back-to-back twice, with two-year freezes, as beekeeper Marvin Brown, at Seffner, located in Hillsborough County near Tampa, told us, the nectar sources for local beekeepers are genuinely threatened, as is honey production.

The citrus growers have at least one congressman in their corner. A bill has been introduced in the House to provide a federal loan program to help replanting. As of now, as far as we can learn, no similar measure has appeared to help the beekeepers whose major source of nectar in parts of the state has been decimated, to cope until new groves appear.

During our visit to Marvin Brown's apiary we talked about the melaleuca tree, which produces a nectar bees like, but in turn results in a strong and somewhat unpleasant honey, which Marvin called 'baking' honey as it



Orange blossom honey is the most important honey in terms of production in Florida. The freezes of 1983 and 1985 caused the destruction of over 75% of the citrus trees in central Florida in a 14 county area. The presence of canker has resulted in the destruction of over eight million citrus trees, with more scheduled.

Citrus growers receive an indemnity payment, but beekeepers are still waiting.



Some citrus grove managers have planted honey-dew melons in the rows. They are good nectar sources but cannot replace the tree nectar flows.

Continued on next page

Continued from previous page

serves that use well. Since it blooms frequently, about every two weeks to a month, it serves as an important source since most other nectar sources bloom less frequently. He commented that the frosts had served one purpose—they had killed, at least for awhile, some of the melaleuca trees in his area, although he expected they would return by sending up shoots from the underground portions. Some people in Florida who are allergic to the melaleuca pollen have lobbied for eradication programs to get rid of the trees.



The flower of the melaleuca or cajuput tree, rich in a strong nectar. U.S. Forest Service photo.

Marvin Brown currently has about 1400 hives, and an excellent honey house, and makes his own hives and other woodenware. His honey harvest for the year reflects considerable damage from the freeze. The tupelo yield was only one-sixth of what it usually is; the citrus one-tenth; and his gallberry one-fifteenth.

One small bright spot was the sight of rows of honeydew melons interplanted in both living and dead groves, as these are a good nectar source.

Driving through Florida we found it almost impossible to get honey other than orange blossom. We found one small source of tupelo honey in the north, and found the delightful gallberry from Florida for sale in south Georgia. Nowhere did we see pollen sold at the roadside stands, somewhat disappointing to us. Another minor nectar source, Brazilian pepperbush, was also hurt by the frost, and apparently did not yield enough for marketing this year.

We hope that some concern for the plight of beekeepers who have lost a major nectar source in the death of the citrus groves, does appear and some appropriate steps taken to provide them with low-cost loans to help tide them over until the citrus groves are once again bearing, eight to ten years. □

Marvin Brown and Connie in the field-house which is shop and store room. All of the hives are built in here, honey extracted and stored.



Freeze damaged citrus groves are being abandoned, and the land sold for housing, motels and other non-farm uses.

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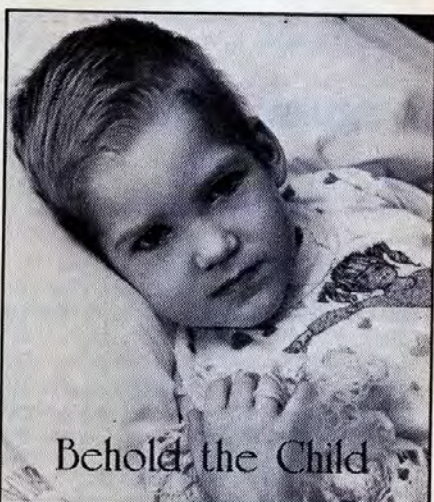
HOWARD Weaver, 79, of Navasota, Texas died October 31, 1985 in a Navasota Hospital of Cancer.

He was born in the Lynn Grove Community and was a lifetime beekeeper. He was senior partner of Howard Weaver & sons until his retirement several years ago. He was an honorary life time member of the Texas Beekeepers Association and recipient of the Texas Beekeeper of the Year Award in 1982. He loved working with bees and talking with the beekeepers. He was a member of Navasota's First United Methodist Church, where he was a trustee, taught the men's Sunday Bible school class for 19 years, and served on the administration board, the board of stewards and the finance committee.

Survivors include his wife, Mrs. Ruth M. Weaver of Navasota, two sons, Billy Howard Weaver and daughter-in-law, Gladys, Morris Weaver and daughter-in-law Mildred, all of Navasota; two brothers, Leo Weaver of Whiting, New Jersey, and Homer Weaver of Houston, Texas, and Mrs. Kathleen Campbell of Nacogdoches, Texas; three grandchildren, one great-grandchild, and a number of nieces, nephews and other relatives.

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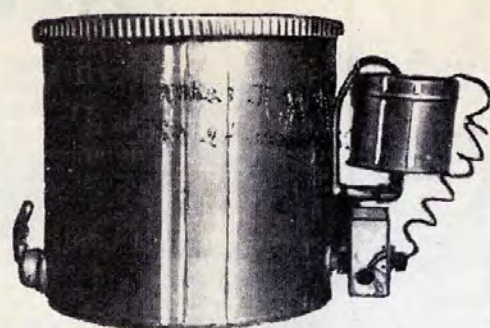
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